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ESTABLISHED 1868

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Manufacturers of

Premier Rayon and SPUN-LO

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Editor: DOUGLAS G. WOOLF

The New Picture

SOMETHING happened this summer. It happened with dramatic suddenness—almost over-night.

Common sense returned to American business. Courage and hopefulness returned to the American people.

The fact that the reasons for that return, at that particular time, cannot be charted by statisticians in terms of employment and carloadings and price indices, means nothing. Equally illogical was the descent to starvation in the midst of plenty.

In no industry has the change been more remarkable than in textiles. In the last weeks of spring, an all-time low in activity had been reached. A basic industry, serving a country of 120,000,000 people, was nearly stagnant.

The transition period seemed to us almost a matter of days. On one visit, selling houses were morgues. On the next, they were humming with life.

There were, of course, tangible reasons for this change. Long-deferred purchases could not be postponed further. No matter how bad business conditions were, or seemed to be, *some* textiles had to be bought—and the buying started late in June. A market stripped of inventories through careful production policies and hand-to-mouth buying, responded quickly to this impulse. Coincidental price advances in certain of the raw materials strengthened the seller's position.

▼

Outside the textile range, fundamental factors were at work. The international debt problem seemed to be approaching hope of solution. It suddenly dawned upon people that the Administration had been, and was, pursuing a definite and consistent program to promote business recovery—and that, despite apparently insuperable obstacles, this program was gradually becoming effective. Rising security prices lifted the fear of bank calls from the minds of individuals.

But far more important than any of these factors—and apparently not as a direct result of them—was the new attitude of hopefulness among people generally. It was as contagious as was the attitude of despair just a few months ago.

▼

This new spirit must be fostered carefully. It will be the object of attack from skeptics who see merely the fundamental problems still to be solved, and not the means of solution, and from vultures who thrive on depression.

More than that, however, it may be threatened by industry itself. And this is where the individual textile manufacturer comes in.

Much of the business accepted since the start of the improvement has been unprofitable. Granted that it supplies employment to a larger number of people, it still does not lay the groundwork for a prosperous industry for both management and workers.

If textile manufacturers will continue to exercise balanced control of their production and at the same time develop sufficient backbone to sell that production at a fair profit, the future is bright.

There are definite signs of sanity in this direction. But the movement must be more than an opportunistic one—more than a vacillating response to fluctuations in demand. It must be an unchangeable, continuing policy on the part of every manufacturer.

If it is, we repeat, the future is bright.

U. S. Rayon Output

FOR 1932 ESTIMATED AT 20% LESS THAN 1931

"WE HAVE recently experienced a much greater demand for rayon and, since writing you yesterday, we have decided to increase our production. We now estimate that our production from Aug. 1 to Dec. 31 next, will be . . . . pounds (three times the figures estimated the previous day). In the past few months we have reduced our stock quite materially and, disregarding profits, the whole picture is now a much better one."

The above actual quotation from a letter received by us, in connection with our survey of domestic rayon production, reflects dramatically the moving picture in the synthetic fiber field in late summer. It also indicates the difficulties facing the forecaster. When one company within 24 hours multiplies by three its estimate of its own production for the last five months of the year, the reservations with which an estimate for the industry as a whole must be accepted need no further emphasis.

Our estimate indicates domestic production during the first seven months of this year at 62,500,000 lb., and probable output of 52,500,000 lb. during the last five months—or a total of 115,000,000 lb. for 1932. This compares with our estimate of 144,350,000 lb. for 1931—a drop of approximately 20%. If our 1932 figure is within reasonable limits of accuracy, this year's output is about on the level of the 1929-30 average.

The estimate of 115,000,000 lb. for 1932 is based on confidential information received from firms representing about 92% of the production of the industry; the balance, of course, was pro-rated. Since the information was requested, and offered, on the understanding that it would not be used in connection with the names of individual companies, but merely for consolidation into a total, there is no reason to fear the manipulation which potential publicity often induces. The total may therefore be regarded as the actual anticipation of the industry in late August. The extent to which activity then current may have been over-rated or under-estimated is of course the questionable factor in the prediction.

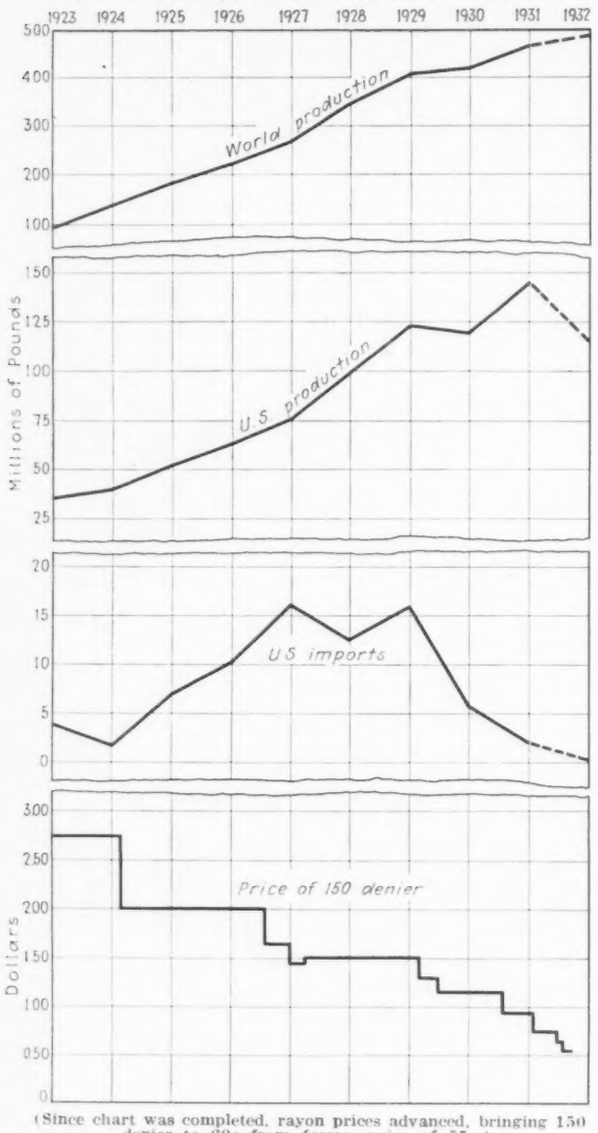
However, more important than actual poundage which may be produced this year is the production-demand balance. It is gratifying to be able to pay tribute to the extent to which yarn producers put the brakes on their operating schedules in the early summer. Complete shut-downs for a month or more averted what seemed to be imminent disaster. As a result, in the late summer firms were able to state, as did the company quoted above, that they had "reduced their stock quite materially in the past few months."

Unfortunately, most of them would also have to qualify their enthusiasm, as did that company when it stated that "disregarding profits, the whole picture is now a much better one."

"Disregarding profits!" The phrase has a double meaning. That is what the industry has tended to do. Two successive price-cuts in June and July brought 150 denier viscose from 75c. to 65c. and then to 55c.—admittedly a profitless level. To be sure, the collapse in silk presented a serious problem to the synthetic fiber industry, but that is more an alibi than an explanation. Makers now have at least two months of profitless business on their books taken at the low figures.

Since Aug. 22, however, rayon prices have advanced 5 to 10c. and the industry talks of 90% output in September. The sharp increase in demand which inspired the accelerated production, brightens the immediate picture, but without affecting the fundamentals. The weak factor has been the failure to capitalize fully the controllable phase of synthetic fiber production. No matter what may happen in the future, that is the only way to avoid the menace of the phrase "disregarding profits."

SYNTHETIC FIBERS DURING LAST DECADE



(Since chart was completed, rayon prices advanced, bringing 150 denier to 60c from former price of 55c.)

World Rayon Output

FOR 1932 ESTIMATED AT 3% MORE THAN 1931

◆ *The preliminary estimate of world production of synthetic fibers in 1932 was prepared, as usual, by our Manchester (Eng.) correspondent from data obtained abroad. It will be noted that his figure for the United States is approximately 4,000,000 lb. in excess of our own estimate, printed on the opposite page. It will also be noted that, while we indicate a 20% drop in domestic output, he estimates a 3% increase for the world. Incidentally, his break-down by processes, for the various countries, represents his independent forecast. In view of the rapidly changing economic picture, all estimates made at this time must be regarded as tentative.*—Editor.

IN Tables I and II appears our usual estimate of world rayon production and consumption covering the current year. Although the writer has fairly accurate information regarding both output and exports and imports during the first half of the current year for most of the countries concerned, it is exceedingly difficult to know the trend of production and sales during the second half. At the time of writing many countries are passing through something of a slump period, and in certain instances the writer has had to assume that a recovery will take place during the closing months of the year. In the case of the United States the estimate allows for such an improvement. Allowance is made for the fact that during the middle of the year some of the largest plants in the country were closed down for varying periods.

The final estimate of world production for 1931 was around the 470,000,000 lb. level so that the preliminary figure for 1932 shows an increase of just over 13,000,000 lb., or approximately 3%. The chief contributors to the increase are Great Britain and Japan, though both Italy and France are also estimated at a somewhat higher figure than a year ago. It should be noted that consideration of output has not been included for certain countries, notably the U.S.S.R. Actually the Soviet output of rayon is still very small, and would make little difference to the total. Other countries not included are Austria, Greece and Hungary. In each case production in the first half of the year was believed to have been negligible, although the Magyarovarer in Hungary and the Austrian Glanzstoff may easily resume production during the second half of the year. Little information is available regarding the Athens plant.

In estimating the Japanese output allowance is made for the fact that output is still being extended and according to schedule the total for the second half of the year should be considerably in excess of that for the first half. Actually the Japan Rayon Association may find it necessary to limit output in the closing months of the year if stocks are not readily disposed of.

With respect to the various processes the increase in viscose continues to keep more or less in line with the increase in the total. In acetate a decline in production in the European countries has been counteracted by a larger output by the Celanese companies, especially in Great Britain. The cuprammonium figure is swelled by the extension of the Japan Bemberg plant, but whether this level will be obtained during the second half of the year remains to be seen.

Turning to the consumption table it will be seen that an increase in stocks—though not of a very serious nature when spread over the whole world—may be expected from the figures to hand so far. Actually, 1931 saw a diminution of stocks, although the corresponding article a year ago predicted that production would be larger than consumption. Let us only hope in the interests of the world trade that we are making the same mistake this year. In arriving at the consumption figures the present quiet period has been allowed for, but it has been assumed that there will be a more active period throughout the world during the fall.

Table I

Estimated Production and Consumption of Rayon Yarn—1932

(In thousands of lbs.)

	Production	Consumption
Belgium	9,218	5,600
Britain	74,700	66,700
Canada	7,161	8,365
France	36,993	19,800
Germany	51,161	63,500
Holland	16,148	3,000
Italy	77,209	26,000
Japan	61,699	54,000
Switzerland	11,264	5,700
United States	119,388	120,000
Others	18,291	98,000
Total	483,232	470,665

Table II

Estimated Production of Rayon Yarn by Countries and Processes—1932

(In thousands of lbs.)

Country	Viscose	Acetate	Cupra.	Nitro	Total
Belgium	8,602	616	.....	....	9,218
Brazil	524	156	.....	....	680
Britain	59,935	13,940	825	....	74,700
Canada	5,676	1,485	.....	....	7,161
Czechoslovakia	3,916	.....	.....	....	3,916
France	34,133	2,860	.....	....	36,993
Germany	42,280	2,464	6,417	....	51,161
Holland	16,148	.....	.....	....	16,148
Italy	73,414	2,079	1,716	....	77,209
Japan	58,619	.....	3,080	....	61,699
Poland	7,304	.....	.....	....	7,304
Spain	6,116	.....	.....	....	6,116
Sweden	275	.....	.....	....	275
Switzerland	10,868	396	.....	....	11,264
United States	97,003	14,380	3,725	4,280	119,388
Total	424,813	38,376	15,763	4,280	483,232

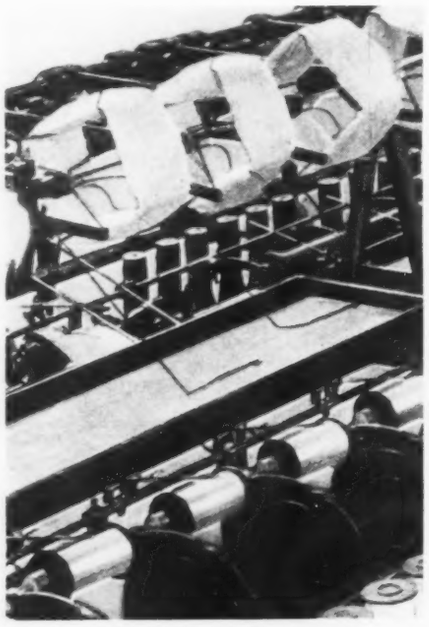
THE YEAR'S TECHNICAL DEVELOPMENTS IN

Rayon Manufacture

By Harold DeWitt Smith, Ch.E., Ph.D., F.T.I.

Textile Technologist, A. M. Tenney Associates

A SURVEY of the developments in rayon manufacture reported and observed during the last year reveals that the stern necessities of the economic situation have dominated the trend of research in every branch of the industry. The outstanding developments of the year are: first, the introduction of a revolutionary principle in the handling of wet-spun cuprammonium yarns; second, the rise in importance of dull-luster acetate yarns; and third, the persistent drive to lower the cost of the viscose process by increasing the spinning speed and simplifying the after-treatment and handling.



Winding rayon from "cheeselets" as in Breda process

To begin with raw materials, the low prices of linters and wood pulp have apparently eliminated for the present the consideration of other sources of cellulose. The only development of this nature which has persisted is the experimentation in North Carolina with the harvesting and utilization of the entire cotton plant. It would seem that the chemical problems involved in the production of a satisfactory grade of cellulose from this heterogeneous mixture of stalk, leaf, seed, and fiber will be much more difficult than the mechanical problem of harvesting and handling.

An advance in the reduction of the health hazard in connection with the spinning of viscose type yarns is claimed by the addition of small quantities of cellulose nitrate and sodium nitrite to the viscose solution in order to promote the oxidation of the hydrogen sulphide liberated in spinning and to reduce also the concentration of the other objectionable gases, carbon disulphide and sulphur dioxide.

Spinning Problems

Great activity on the problems of spinning has been evident. In Germany, as a result of the actual design and operation of a revolving spinneret, an exhaustive study has indicated the impracticability of this method of spinning a twisted yarn. The difficulties of design are said to have been solved; but the currents set up in the spinning bath by the revolving spinnerets cause uneven twist, filament breakage, and sticking together of the filaments.

An intelligent study of the stretch spinning by means of the flow of the spinning bath in a funnel-shaped vessel has also been made in Germany. By means of the counter-current principle; i.e., causing the spinning bath to flow upward through the funnel against the downward movement of the rayon, the greatest concentration of the spinning bath is brought to bear on the completed filaments and the lowest concentration of the spinning solution as it emerges from the jets, thus causing a more gradual and uniform precipitation. A number of patents on the dry-stretch spinning of acetate yarns have appeared, many of which involve passing the filaments during or after spinning through the vapor of some solvent or swelling agent and stretching them while in the swollen state.

The vogue for dull-luster yarns, which acetate yarns were first able to meet by reason of the property which they possess of being delustered in the yarn- or fabric-finishing operation, has resulted in the rapid development during the year of acetate yarns which are spun dull. The most common method of accomplishing this involves the incorporation of a finely divided white mineral substance in the spinning solution. There have been many patents on the subject of spinning dull yarns, and in addition to mineral pigment, other insoluble substances in finely divided forms, such as cellulose, oils or waxes, or other organic materials, have been mentioned. There are also a number of methods based on the formation of minute spaces within the fiber, as for instance, by the incorporation of a material in the spinning bath which will evaporate after the filament is formed, thus leaving minute bubbles within it.

The question of spinning a hollow filament, which is closely related to these latter methods, has been revived, and a number of newer methods of accomplishing this have been recently described. One of these claims to produce a continuous lumen within the filament, rather than the usual series of bubbles or the curled horseshoe-shaped sections which many of the so-called hollow-filament yarns exhibit. In the hollow-filament field the most fundamental advance is probably the method which extrudes the spinning bath into the spinning solution, thus reversing the usual procedure. This novel method is said to be applicable to any wet spinning process.

The higher spinning speed of the acetate yarns and perhaps also the recent advent of the new Furness process have intensified the efforts to reduce viscose costs by

speeding up the rate of production by this process. To this end the speed of spinning centrifugals has been stepped up. The limit of spinning speed by the pot system is apparently about 100 meters per minute, and the trend towards still higher speeds will undoubtedly settle the pot-versus-bobbin controversy in favor of the bobbin. It is also leading to the use of still larger bobbins. With the bobbin system, the limit of practicable speed is said to be in the neighborhood of 200 meters, since at higher speeds, the filaments will break on the bobbins because of the tension caused by centrifugal force. The attainment of these higher speeds necessitates the complete redesign of viscose spinning machinery, as larger bobbins are necessary and the problems of corrosion due to the use of warm solutions and of vibration and general wear and tear must be solved.

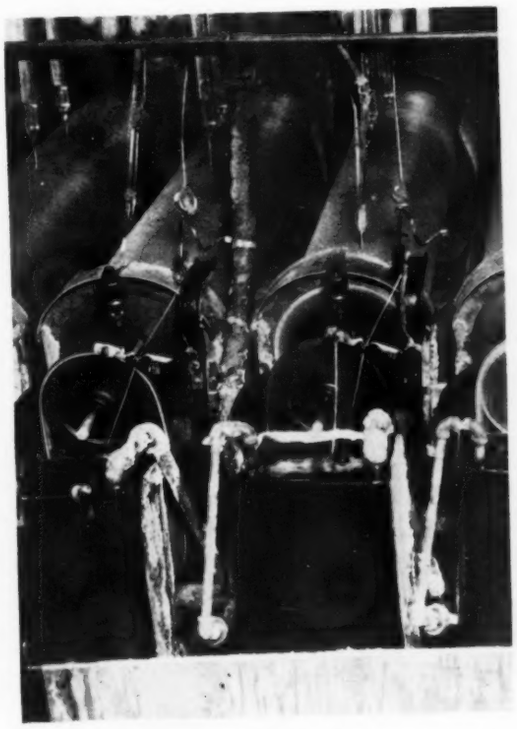
One of the obstacles to wet spinning at high speeds has been the excessive tension and filament breakage caused by the weight of the cone of spinning bath which is built up above the surface of the bath by the emerging yarn. This has been overcome by several methods, such as bringing the yarn out of the bath at a very small angle with the bath surface, or by the use of a guide ring below the bath surface to deflect or strip off the film of spinning solution which is being pulled along by the yarn. Machinery has been designed in Germany to spin viscose yarn at 200 meters per minute and plants are said to be actually operating pot spinning at 100 meters.

One of the most recently described combinations of high-speed spinning and improved aftertreatment of viscose yarn is the Bazzochi system, which is reported to be operating in Italy and elsewhere to the extent of some 14,000 lb. daily. The yarn is spun at 80 to 100 meters per minute onto 150-mm. bobbins, and after treatment on these bobbins, is twisted on ring twisters at 60 to 80 meters on to spools containing ½ to 1 lb. of yarn without a knot.

Undoubtedly the most important development this year in synthetic-fiber manufacture from the standpoint of its potential effect on the future technique is the Furness machine which is being operated on the Furness cuprammonium process. This ingenious apparatus has compressed the whole process of spinning, aftertreating, drying, twisting, and packaging into one operation, and has reduced the time required to carry the yarn from the spinneret to the shipping package to about three minutes.

Heart of Machine

The heart of this machine, which has been described at great length in the technical press, is an inclined cylindrical cage on which the yarn from the spinning bath is wound in a closely laid spiral which is made to progress up the cylinder by means of the movement of the bars comprising it. On the lower part of the cylinder the yarn is treated chemically by solutions which drip onto it and spread out in a film which flows counter to the movement of the yarn. Above this point the yarn is washed by a similar treatment; and on the upper end of the cylinder it is dried by a warm air stream. The yarn then feeds off the upper end of the cylinder onto a ring twister which produces 1-lb. spools for shipping.



Furness process spinning

The advantages claimed as a result of commercial operation during the year include low installation and low labor cost in addition to claims previously made for simplicity and controllability of the chemical aspects of this process. The principle on which the machine operates will undoubtedly have a profound influence on the future trend of rayon-manufacturing technique.

To return to the older processes, it has been reported that in the aftertreatment of viscose yarn the use of ammonium sulphide instead of sodium sulphide reduces the sulphur content of the finished yarn and increases its strength and elongation.

In European viscose plants the recovery of caustic soda by means of the Cerini dialyzer is said to be almost universal.

A dryer for skeins or bobbins has been described during the year which utilizes a large turbo fan within a circular rack on which the skeins or bobbins rotate slowly on their own axes as the rack itself revolves. Feeding and removal of the yarn is manual and continuous.

The usual crop of new processes has been reported during the year; but while these innovations are potentially important because of their possible influence in the future, they have apparently not attained a real place as yet. Among these are a number of methods of dissolving silk fibroin, such as in phosphoric acid, magnesium nitrate, or liquid ammonia, and the spinning of "real artificial" silk from these solutions. From Italy a process for spinning rayon in a vacuum from cellulose formate is described. The cellulose is regenerated as such during spinning so that it dyes with cotton and viscose colors. It is asserted that the yarn is cheaper and better than acetate yarns.

Work continues in the introduction of nitrogen into the cellulose molecules as an amine or a cyanate; and fabrics made from such yarns are said to have a soft, wool-like feel and to react to the acid and basic dyes, rather than to the direct colors.

Use of mixed esters of cellulose, such as nitro-acetate or formate-acetate mixtures, have apparently not attained the technical success which was hoped for them.

The vogue for fabrics of spun rayon continues to grow; and in addition to increasing consumption of these yarns spun on the older cotton and silk systems, several new spinning systems, which have been designed specifically for the synthetic filaments, have attained practical importance during the year as sources of spun-rayon yarns.

Cartels

SPEED RATIONALIZATION OF EUROPEAN RAYON INDUSTRY

By J. Guthrie Oliver
Manchester, England

◆ *While leaders of the domestic synthetic fiber industry fight hard to develop the limited amount of cooperative effort permitted by law, European producers go merrily on the road toward amalgamation. The cartel, with its quota system, seems to be producing results. In this country it would be good for a one-way ticket to Atlanta.*—Editor.

THE European rayon industry continues to be an interest-center of amalgamations, cartels and sales agreements, and the last 12 months have seen many developments of this nature, leading to a steadily more rationalized state of affairs. No one will dispute the fact that rapid progress has been made toward greater efficiency and more economic working as a result of the efforts of the various groups and individual concerns. So far as can be ascertained, the big European producing companies have made just as much progress in reducing costs by faster spindle speeds, fewer operatives, and the introduction of "cake" washing as have the producers in the United States and Britain. As a result of the continual process of rationalization, internal competition is slowly disappearing from the European industry, which will accordingly be better placed for the ultimate fight for export markets which seems destined to take place with Japan.

An important proportion of European output has been in the past, and still is being, disposed of in Asia and South America, and there is already a campaign on the part of the Japanese producers to secure the trade in the non-producing countries.

In Italy the sales and production for both home and export are still controlled by the "Italrayon" and if the 1931 results of the Snia Viscosa are any indication, this concern would appear to have justified its existence. It is understood that in addition to the big three of the rayon industry in Italy—Snia, General Viscosa and Chatillon—several of the small independent concerns including Gerli, Orsi Mangelli and Manifattura are now selling through the "Italrayon." A short time ago there was a rumor that the sales organization was to be liquidated and re-formed on a slightly different basis, but denials of this have since been issued.

The Italian producers are at present making an effort to increase home consumption so that they will be not so dependent upon export business. Actually during the current year export business has been remarkably well maintained. Business with Germany under the quota system is at about the same level as last year, and while a serious loss of business has been sustained in China on account of Japanese competition and unsettled conditions, a substantially larger business has been done with India. In this latter market competition from Japan tends to increase, and the "Italrayon" is said to have accordingly reduced prices by a considerable amount.

If Italy is to continue to produce on anything like the present heavy scale, she is bound to depend upon the export markets for a large proportion of her sales. So far she has been able to export to many of the smaller producing countries, who have not been able to compete in price with Italian produced yarns.

The second largest exporting country, Holland, has suffered more than either Italy or France as a result of the German quota system. Owing to the fact that the principal Dutch and German producing companies are combined together, the management finds it more economical to limit imports from Holland, and as the German market has been of substantial importance to Holland, production in the Dutch plants is being limited accordingly. It is also stated that the Enka selling organization has refused to cut prices in the Far Eastern markets, and has suffered a loss of bulk business on this account. Technically, however, the Dutch plants are very advanced, and the quality of their yarns is renowned. There is reason to believe that the position will gradually right itself.

Undoubtedly the most interesting recent development in the European rayon industry has been the formation in June of the Centrale des Producteurs de Soie Artificielle which is a sales cartel controlling the production of most of the French viscose concerns. For some years now efforts to bring the French producers together have been made, but the Comptoir Group has preferred a fighting rather than a conciliatory policy. The several large outside concerns, however, have been able to compete with the competition of the strong Comptoir Group, and a quota system is the most natural way of ending the long period of price warfare.

So far the quota system has not been put into operation, although it will probably be working by the time these comments are in print. The Cartel has succeeded in raising prices by an average of 2 francs per kilo, which has brought them to a more remunerative level.

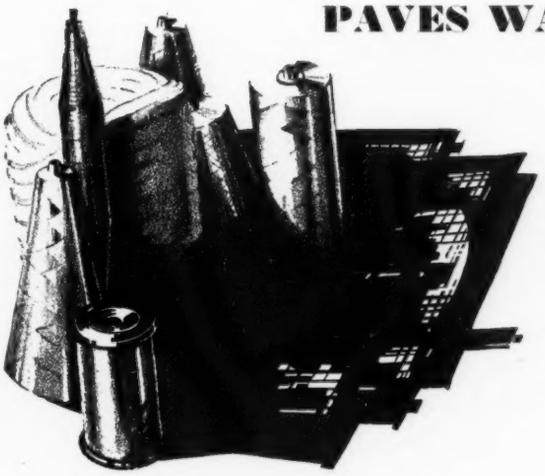
The German Viscose Verkaufsburo has now been working for the best part of 12 months, and has succeeded in eliminating price-cutting in both home produced and imported yarns. It is working in close conjunction with the "Italrayon" and the "Fabelta," the new Belgian combine which has united all the principal Belgian companies which now become holding companies.

The whole of the European industry is working with a remarkable degree of harmony.

The next step will probably be the further extension of the international quota system in other European countries on similar lines to the German Verkaufsburo. Possibilities along these lines are very great in respect to both technical and sales collaboration, but the further inter-uniting of the European industry must obviously be a gradual process.

Seller's Market

PAVES WAY FOR STRONG RAYON RISE



WITH most companies sold up solidly on certain of their more popular deniers to the end of the year, the outstanding question in the rayon industry now is: "How soon shall we be back on a profit-making basis?" It would seem that such is not far off; two companies led in advancing prices, one only on the finer deniers, the second including 150s, and by Aug. 31, practically the entire industry had followed suit, effecting a general advance of 5 to 10c.

The turn of the tide in demand for synthetic yarn was concentrated into a few weeks, and proved one of the most dramatic periods in the history of the industry. One company estimated unofficially that sales of certain sizes increased 600% between late July and mid-August, and while this probably was not typical it was far from being an isolated case.

Prompt to reflect the up-trend in the securities market and the gain in public confidence, broad-goods weavers began at the beginning of August to flood producers with orders for 75 and 100 denier yarn. Orders increased daily, and with producers' stocks so low, a tight situation was precipitated within a brief time. On Aug. 22, DuPont Rayon Co. announced a price advance of 10c. on 75s and 100s, bringing these sizes up to 90 and 75c. respectively, on skeins, and 95 and 80c. respectively on cones.

There was no immediate follow-up of this rise by the industry as a whole for the simple reason that most producers were already booked to capacity on these two sizes. Few were in position to accept orders prior to December or January, and those who did take business, were selling at DuPont levels without making any announcement. On Aug. 25, however, Tubize Chatillon Corp. announced a similar advance on fine deniers, and also a rise of 5 to 10c. on numerous other viscose and nitro yarns, including 150s, and the market accepted this level in new price lists.

What happened, in a word, was that the rayon situation changed almost overnight from a buyer's to a seller's market. While the major cause of course, was the improved psychology incident to Stock Exchange gains, the healthy stock position of the rayon producers themselves was a vitally important contributing factor, and the rising trend of prices of competing fibers also influenced the demand. The mid-summer shutdowns proved the one thing needful to put the industry in readiness for the upturn. At the start of the boom demand—and the hectic scramble for yarn cannot be otherwise characterized—stocks in the hands of producers had declined to slightly more than a month's supply in many cases. Toward the end of August, it was estimated that the month's volume would exceed 15,000,000 lb.

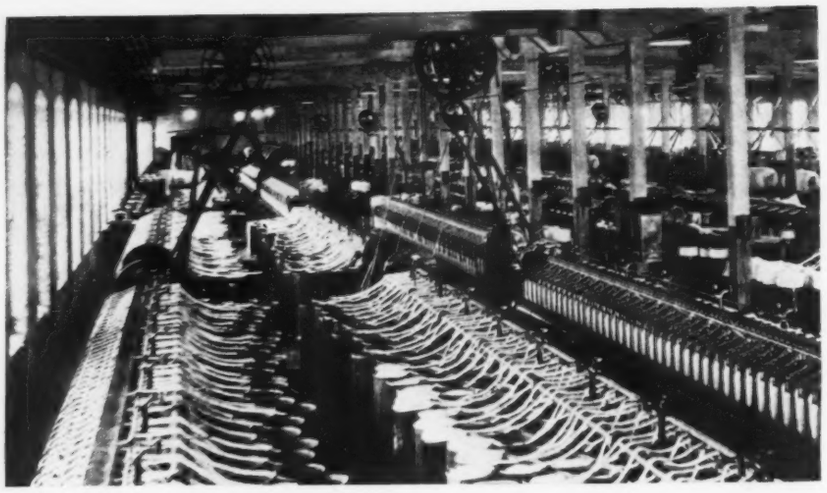
During the first weeks of the rush weavers were the chief buyers, and this gave fine deniers the ascendancy; 150s, usually the trade's best-seller, were in a secondary position. In mid-August, however, the knitters, including both underwear and hosiery manufacturers, caught the enthusiasm of the weavers and the sales of 150s rose sharply each day thereafter. Within ten days leading rayon companies were booked solid on their 150s for September and October, and toward the end of August buyers found difficulty in getting even December delivery on orders for 150s.

Production of yarn was accelerated in immediate response to the increased demand, but certain delays at that end were inevitable due to the mechanical factor; the result was that the rate of sales rise far outdistanced the rate of output increase. It was expected that the industry would be near capacity output by late September; orders already on the books come close to equalling maximum production for the remainder of the year.

So much for sales and stocks. What about the profits? The persistent downward trend of rayon prices, which has continued since long before the depression, reached its crisis early this summer when 150 denier was officially cut to 55c. following widespread sub rosa selling at that level. This reduction would have made for meager profits even with plants in normal operation; at the time of the cut, output of yarn in the industry was a bare 50% of capacity, which meant complete elimination of margin for practically all companies.

The oversold condition of the industry presupposed the increase already announced, and perhaps other increases, if demand continued. Buyers clearly regard rayon today as due for a significant upturn, the DuPont rise and the general rise which followed being viewed as nothing more than preliminary. In the opinion of leading rayon executives, a general upward movement is simply a question of time. The producers were studying the situation very closely at the end of August, the main question being whether the increased demand could be relied upon as reasonably permanent.

Meanwhile, the rayon industry is so active as to be in rather a "dizzy" state. Veteran sales executives declared the third week in August to be "the wildest and busiest week" in the history of the industry. These men looked for continued pressure through to November, followed by several weeks of holiday lull, and then a sharp pick-up carrying through March and April.



Fine filaments are more easily worked

Rayon Waste

SPUN SUCCESSFULLY ON COTTON SYSTEM

By Charles A. Weston

JUST a few years back there was one question that really was a big problem to the cotton mill desiring to spin waste rayon. This was how to cut the rayon or where to have it cut into a staple length close to 1⅛ in., 1¼ in., or any other length which the mill might consider best suited to its purposes. This question has now changed to one of choosing between buying the rayon cut to staple or cutting it on the premises. More important, however, is the selection of a source for the rayon which is certain to yield a sufficient quantity of even-running stock.

If a mill decides to do its own cutting, it will find available a considerable variety of machines for the purpose. Among the types which may be found in mills already spinning rayon waste are two-blade and three-blade hay cutters, which require alteration of the cutting plate and the feed gearing; machines employing the revolving blades of several lawn mowers; cutters developed primarily for the paper trade; revolving and stamping machines developed by the mills using them; and commercial machines designed and sold specifically for this work by a machinery manufacturer.

The denier of the rayon and the diameter of the filament affect the running of the stock in the processes which follow cutting. It is found that 150-denier rayon with 60 filaments will run more satisfactorily than 150-denier rayon with 24 filaments; and 125-denier rayon with 50 filaments will run better than the same denier with 25 filaments. It is evident, therefore, that fineness of filament is an aid to successful operation.

An experience of the writer's may serve to shed further light on this subject. Two different makes of rayon of the same denier were to be broken up by a waste machine of the pin-cylinder type. One lot of rayon was stiff and the filaments appeared to be fastened together with some sort of sizing or other material used in its manufacture. The other rayon was soft and the filaments separated easily. No particular difference was noted in the running of the two stocks on the waste machine; but on the card it was found that the soft and easily separated rayon ran well, while the other seemed incapable of producing a web which would hold together consistently, although enough stock was obtained from the card to supply the following processes. The soft rayon was made into 40s yarn on regular spinning frames without difficulty on regular draft; while the stiff rayon, although made into only 10s yarn, required the insertion of an abnormal amount of twist—and even then did not run satisfactorily. Considering all the processes, the stiff rayon gave the most trouble in carding.

The reason that fine filaments will permit a better web to be taken from the doffer probably lies in the fact that there are more fibers in the web and they are more tractable, on the principle that a thin rod can be bent out of shape more easily than a thick rod of the same material, thus insuring a better cohesion of the web. Where the continuous stripper or fancy roll is used, the stock is agitated and less stripping is needed. Flats can be raised 25/1000 to 30/1000, and the speed per inch decreased. Where 100% rayon is being handled, blank screens should be used and there should be no openings near the licker-in. In one instance with which the writer is familiar the mote knives have been eliminated.

At the drawing process 1⅜-in. front rolls are being run at 190 to 290 r.p.m. Depending on the weight of the stocks both fed and delivered, the weight on the back roll may have to be increased slightly. Metallic top rolls can be set the same as for cotton of the same staple. The method of setting drawing rolls has changed during the last few years; and the rule now appears to be to set the second roll from the front roll a distance which is approximately equal to the staple length, then to split the distance that the back roll can be moved from the second roll in such a way that the third roll is approximately ⅛ to ¼ in. nearer the second roll.

Some mills are combing their rayon and spinning from 40s to 65s yarns, employing regular draft as compared with long draft.

The twist inserted in any of the processes will depend largely on the fineness of the filaments. At the roving process in some instances only one or two teeth of twist have been inserted over the amount required for cotton of the same staple. In other instances, of course, where the rayon staple is longer than the standard cotton staple used by the mill, less twist is inserted in the rayon. In all cases with which the writer is familiar, however, the twist has been increased three or more turns per inch at the spinning process over that used for the cotton, largely due to a particular effect wanted.

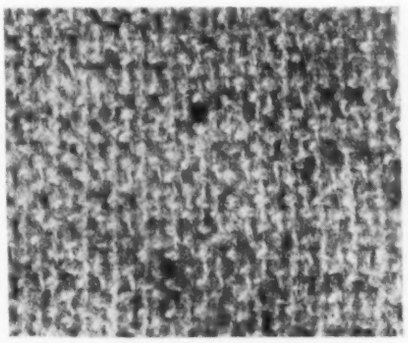
Rayon-Woolen Blends

ADVANTAGES AND VARIATIONS

By Henry R. Woodward

THE number of variations in blends of rayon waste with wool, noils, wool waste, and reworked wool is now almost limitless. Prior to about 1914 there was so little supply of rayon waste that very few superintendents of woolen mills knew of such a fiber and fewer still had ever had it offered to them.

The reasons for and advantages in its extensive use today lie in (1) reduction of cost without proportionate reduction of sales appeal; (2) cross-dyed effects made possible in the piece by the lack of affinity of the rayon for many wool colors and its absorption of direct colors; (3) similarity of rayon to wool and hair fibers in many respects, especially in spinning properties; (4) enhancement of luster; (5) ability to spin shorter-stapled woolen fibers to finer counts without a considerable increase in cost; and (6) considerably snappier, brighter, and more salable colored yarn made by using rayon waste in stock-dyed blends with reworked wools or wool waste having dark grounds, since the direct colors are in general brighter than the chrome colors. The last item is particularly important for womens' wear, in which bright colors may create an additional sales appeal and added value.



In blending rayon waste, the first considerations must be the use to which the fabric will be put and the price field in which it will compete. For example, the requirements of men's overcoatings and suitings, at least in the higher- and medium-grade price field, practically preclude its use; whereas it is quite largely used in the manufacture of lower-cost men's- and boy's-wear woolens in appreciable percentage, mixed with wool, wool waste, and reworked wool.

The great poundage, however, is used in blends in the women's-wear field. Here more rapid changes in cut of garment, weave, color, finish, and character of fabric create a relatively high degree of obsolescence. This in turn inculcates a demand for fabrics which will have a good appearance, which will wear well as long as the average woman will use the garment, and which she may purchase at a price that will enable her to discard it when it is outmoded rather than when it is outworn. It is as logical, therefore, to use rayon in a reasonable percentage of the blend for the medium and lower price ranges as it would be foolish to incorporate it (unless for some very special effect) in a women's-wear fabric going into the very highest price class.

Perhaps the easiest way to explain the above six reasons for blending rayon with woolen is by examples such as the following:

In regard to reduction of cost, if 30% of rayon were to be blended with a good grade of white wool on today's markets, in a cloth of 16- to 17-oz. weight finished, the saving would permit a 12½ to 15c. reduction in the selling price of the fabric.

Suppose the fabric were to have a high-end construction, necessitating finer-spun yarns, and it were necessary to use reworked wools to sell the fabric at a price, the finer size of yarn might be beyond the spinning ability of the reworked wool or noils. An inclusion of say 30% of rayon in the blend might make a reduction of only 5 to 7½c. per yard in the selling price, but—it would enable the finer counts required to be spun, thus making possible the fabric, at a price, without resorting to the staple wool and giving the fabric a strength not obtainable with the reworked wool.

If a fabric is to be made all wool and piece dyed, it will naturally be a solid color. By introducing into the blend 5 to 25% of rayon, as required, and selecting acid colors which do not dye rayon, an equivalent of a white-and-colored mix in stock dye can be produced in brighter colors than the usual stock-dyed fabric. Furthermore, it may be colored at a late stage of manufacture to meet a sudden change in the demand for the various colors. By using neutral-dyeing wool colors and properly selected direct colors, a two-color-blend effect may be obtained in piece-dyeing.

To illustrate why the rayon is preferable to cotton, which would also take direct colors, one has merely to handle the goods. A fabric in which cotton is used in the blend will have the characteristic "dead" feel of cotton, whereas a fabric containing rayon will have nearly the springiness of an all-wool fabric.

An excellent example of the use of rayon waste where luster is a requisite is the sheen pile fabric once popular having worsted warp, wool and rayon back filling, and all-rayon face filling. Napping wet allowed the rayon face picks to be readily cut.

As an example of the use of rayon to brighten the color of a fabric, one should take a low-grade children's coating, where, on account of selling price, white wool stock would be too expensive, and yet the demand from the trade is for bright, snappy colors. Stripping the wool ground stock might still leave too dark a ground to produce the brilliancy of color desired. By the use of say 25 to 40% of white rayon and direct colors, the brilliant shade can be obtained.

[In a later issue of TEXTILE WORLD Mr. Woodward will discuss the selection of rayon waste for various classes of fabric.]

KEEN COMPETITION FOSTERS

PROGRESS IN

Rayon Throwing

By Stewart H. Gilston

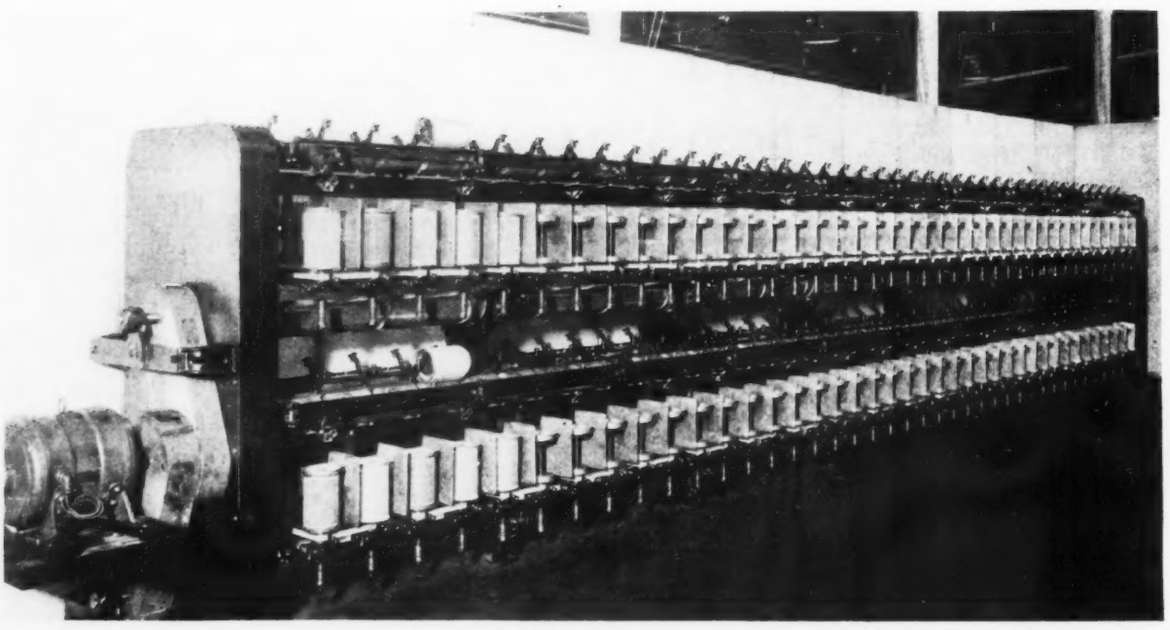


Fig. 1. Modern twister designed for use by rayon producer and converter

DURING the last year rayon fabrics have experienced a drop in price greater in proportion than the fall in price of rayon. These low prices have been due to keen competition both in spinning and converting. In their search for ways to cut costs without lowering quality, the yarn producer and converter have given more attention than ever before to the equipment used in rayon throwing operations.

New Twister

The twister shown in Fig. 1 is one of the most recent developments. It is intended primarily for use in rayon plants for the addition of twist to yarns after they are spun, but may be employed to good advantage by the converter. It is of rigid construction, tending to eliminate vibration at high speeds. The cams and gears driving the traverse motion are run in oil, allowing high speeds with a minimum of wear; and the specially constructed spring-bottomed spindles permit the running of large packages, or packages off balance, with a minimum of vibration. Since this machine can be obtained in any desired gage and can be made to accommodate any size of spool, it can be adapted to nearly all classes of work.

Some of the newer dyeing machines have proved that they are worthy of all the manufacturers' claims; and the winding of 75-denier rayon dyed in them compares favorably with the winding of 300-denier yarn dyed in older types of machines, or 150-denier yarn dyed in hand tubs. There has been a noticeable increase in the demand for printed rayon yarns for the knitting trade. Most of the printing has been done by hand on skeins, rather than by the continuous process. Acetate yarns are aperiodically saponified by a continuous process, thus giving a cross-dyed effect after knitting.

A magazine creel, introduced primarily to afford continuous warping on a mill, allows speeds up to 300 yd. per min. By the use of revolving tensions the ironing effect of flat tensions was overcome and the utmost uniformity in tension on the warp sheet was attained. The 3° 30′ type cone, wound with a fixed gainer case on the L-type-drive cone winder, proves an ideal package for this warping creel; sloughing off being at a minimum.

Importance of Humidification

The importance of proper humidification in handling synthetic fibers of all types is being realized more and more. Although acetate yarn cannot be loaded under normal conditions, and its strength is impaired only to a minor degree by excessive humidity, humidity does aid it in processing, as it helps to allay static. Observations in a converting plant showed that a 200-lb. lot of viscose type yarn after being dyed weighed 191 lb. when received

from the dryer. After standing for 5 hrs. at a relative humidity of 75° the lot weighed 199 to 201 lb. A relative humidity of about 55° in the coning and winding departments held the yarn at this weight, without danger of weak, stretched yarn as would result from too much moisture.

The mistake of removing viscose type yarns from the dryer at approximately the weight at which they are entered into the dyebath results in damp or wet spots in the skeins; and if the yarn will wind at all, it stretches at each revolution of the skein when the wet spots come up in the swift. In weaving, shiners resulting from this practice are blamed on nearly everything else, but are rarely traced to drying. Fine deniers and sized yarn wind much better if the skeins are shaken out as they are poled and are allowed to dry in a warm room. To rush drying is to slow up winding.

Warp Sizing

Higher warp-sizing speeds have been made possible by using five-cylinder machines, without the harshness or baked effect that accompanies speeding up of the older three-cylinder machines. Paper has been dispensed with by using loom beams with adjustable heads, allowing greater yardages, hence less doffing of beams from slasher and less twisting over in the weave room. High-selvage preventers have proved indispensable in running beams without paper.

The trend in up-stroke spinners has been toward wider gages, spindles adapted to heavier packages, machine design that allows installation of endless belts, and simplified gearing. Use of spring gudgeons with collars holding the take-up bobbins in a fixed position overcomes shifting of the bobbins on the cork rolls. This trouble is experienced with loose gudgeons when producing hard twist; and as the flange of the bobbin comes in contact with the flange of the cork roll, the grinding of the two metals causes a black deposit to be left on the yarn and bobbin head. Thus the spring gudgeons save waste and labor in cleaning spools.

Novelty Yarns

Ratine, boucle, spiral, loop, and other novelty yarns of rayon and rayon mixtures have been extremely popular with the knitters and weavers the last few seasons. In many mills they were made by utilizing two of the three rolls on a cotton spinning frame, or on a twister having two rolls arranged one above the other. The necessary stopping of one of the rolls was accomplished by knocking teeth out of the change gear. In working out a new novelty, an overseer would get a third hand and a truckful of gears, thumb through his records and find an old novelty with similar spacing, put on the cut gear giving the nearest spacing and correctly sized nub. Almost invariably more teeth had to be knocked out or a new gear used so that fewer teeth could be knocked out than was the case with the trial gear. After the yarn duplicated the sample, sometimes the twist had to be altered, and that gave rise to further complication, shortening the nub or changing the spacing. The newer novelty twisters use a pattern chain with riser links, which operates a clutch yoke on the intermittent roll. New patterns are produced by changing the twist gear and the relative speed between the top and the bottom roll. If the intermittent motion is necessary, as in making nubs, the pattern chain is applied with the riser links in the proper position to give the nubs the correct spacing. The clutch yoke is also operated on some models by a series of riser buttons screwed into a revolving disk. This last method is probably best; and it has been used in cotton spinning for producing slub, flake, and other novelties. The strongest point in its favor is that it is very flexible. It is particularly suitable for making Himalaya yarns, as the pattern can be made so that it repeats up to 25 ft. By bringing it into use on the twister, one can make a greater range and variety of novelty yarns.

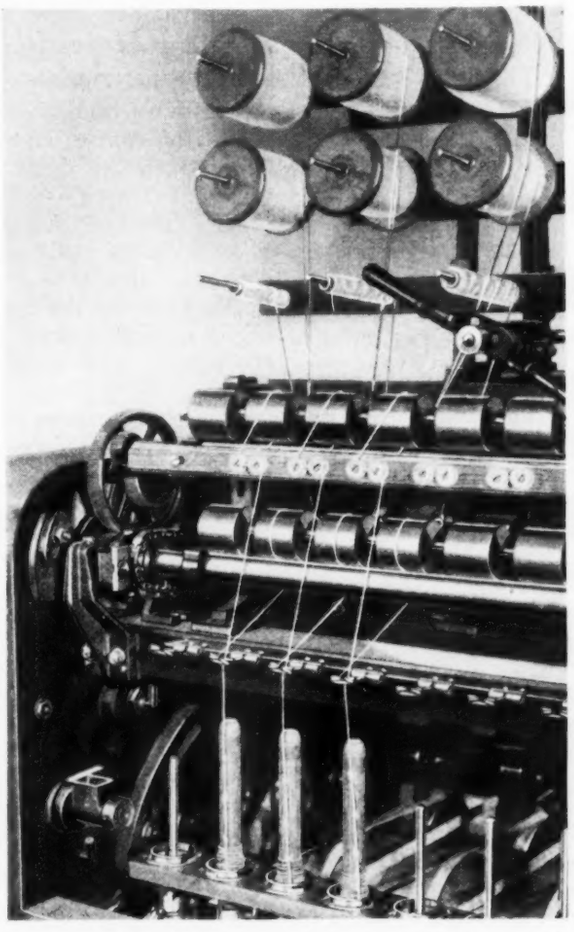


Fig. 2. Novelty-yarn machine with pattern chain

First-Quality Rayon

Converters, weavers, and knitters alike have found that for both skein and piece dyeing first-quality rayon is the cheaper in the end, with the possible exception of rayon to be used in high-twist or novelty yarns. The extra cost for first quality is more than made up when the defective work from second-quality yarn starts to pile up from the cloth-room inspectors or the knitters, cutting tables. This is particularly true when multi-filament yarns are used, as the individual filaments are finer and more fragile. Skeins graded as second or inferior quality due to broken filaments do not look badly perhaps when opened; but after dyeing, winding, and coning, they give a multitude of difficulties when further chafed in a warping mill reed by snowballing, etc. Winding production is cut at least 25%, warping production is cut an equal amount, and a poor grade of fabric is attained at a lower loom efficiency.

Care must be taken throughout the processes to insure that every time a knot is to be tied, about a yard is broken off of each end before tying in order that any danger of slack twist around the knots may be avoided.

Rayon Hosiery

APPEARS TO MAINTAIN STEADY PROGRESS

Courtesy of Brown Hosiery Co.

Fig. 1. Men's fancy half hose of rayon

By Franz E. Baker

◆ *Indications are, declares the author of this article, that in hosiery "rayon is gaining the confidence of the consumer." Although there have been interesting developments in men's half hose and women's circular and full-fashioned hose, it is in anklets and similar socks for children, women, and men that he finds the greatest gains have been made.*

THE use of rayon in hosiery this year apparently is still on the upward trend. A walk through the hosiery divisions of department stores, specialty stores and chain stores substantiates the belief that never before has so much rayon been displayed in hosiery. If one can take the statistics of 1929 and 1927 as a basis, although it is a gamble whether 1931 and 1932 will not upset all statistical data, let us look at the data supplied in the June issue of the *Textile Organon* in what is known as the Census of Manufactures of Hosiery. In 1927 nearly 27% of all the hosiery produced contained some rayon, and 11% was entirely rayon. In 1929, however, 33% of all hosiery made contained some rayon, and 15% was all rayon. The depression years may make a more pronounced advance in the use of rayon in hosiery; or again, they may tend to curtail its use. Such times are the despair of the prophet.

Upon investigating the "census" further, it is interesting to note that the greatest gain made for 1929 over 1927 came in the children's line of hosiery. Probably the greatest part of this gain can be traced to the tremendous popularity for socks and anklets. And from all appearances the last two years have surpassed the preceding two in the wearing of socks, since the fad has spread from children to grown-ups.

More All-Rayon Half Hose

In the half hose produced this year more all-rayon articles have been shown than ever before. By that is meant, of course, hose with leg and instep of rayon, and cuff, heel, and toe of cotton. This is a clear indication that rayon is gaining the confidence of the consumer. The new pastel-shade half hose with their multicolored clocks made of delustered rayon, either with bleached cotton cuffs or with cuffs the same color as the leg, have swept the country (see right-hand sample in Fig. 1). Pastel-shade hose with reverse-plated clocks are popular at a lower price (see left-hand sample in Fig. 1). Then the mesh, made with or without fancy reverse-plated clocks and two-color effects, has found many admirers (see center sample in Fig. 1). Pure-white rayon half hose with clocks of almost any color are popular, as well as the pastel colors.

A color description of the three half hose illustrated may help to show what is typical in popular rayon hose for summer wear. The right-hand sample is a medium-tan ground with an orange clock having bright yellow dots. The left-hand hose is a pastel shade of jade green with the clock standing out in a full shade of that green. The cuffs, heel, and toe are a bleached white cotton. The center sample is another tan with a natural-rayon background. The mesh hose are made by tucking the face yarn and knitting the background plain. The face yarn tucks on every other needle for one course, then on the other needles the next course, alternating. This produces a clever imitation of a true mesh stitch. Fancy effects can be inserted by means of blocks of plain stitch where the face yarn is plated over the background. In the hose illustrated it will be noticed that

the panel in which the reverse-plated clock is knitted is plain stitch. Many interesting and clever designs may be made in these mesh hose by using a twelve- or thirteen-step attachment on a plain machine.

Perhaps a very good indication of the ever-increasing faith of knitters and consumers in rayon is the new lisle half hose which is being produced with a lining of rayon. The rayon is used to keep the more or less harsh lisle yarn from irritating masculine limbs. This seems to indicate that rayon is becoming useful as well as ornamental.

The use of spun rayon in hosiery has been very limited. Some men's half hose appeared with spun rayon twisted with acetate to produce a cross-dye salt-and-pepper effect. They have disappeared for no apparent reason, unless the cost of material proved so high as to preclude competition with similar hosiery lines. Some spun rayon is found in infant's hose, where the feel of wool is desired without the warmth of wool.

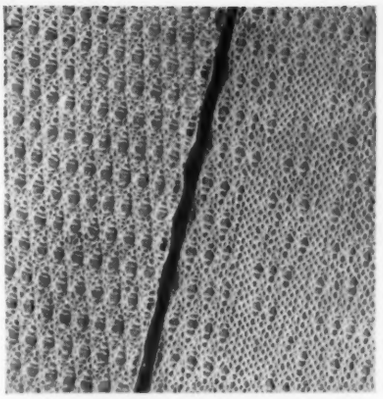


Fig. 2. Women's circular mesh hosiery

Women's Hosiery

The vogue for mesh in women's full hose has spread to great proportions, although it seems to be waning as fall approaches. Circular mesh hose of surprisingly clever design are produced on the latest automatic hosiery machines (see Fig. 2). Rayon has been used to a very great extent in the manufacture of these hose. Delustered rayons seem to be very popular in this line, imitating the high twist and grenadine silk hosiery. One of the latest developments is a crepe stocking made from a rayon delustered to such an extent that it is chalk white. The stockings are made on circular machines and have the feel and appearance of crepe fabric. They are produced mostly in the white to be worn with the new chalk-white rayon dresses. The fact that Dame Fashion has decreed one should have hose to match one's outfit has boosted rayon since the relatively low price of rayon hosiery makes it possible for more to adopt this ensemble.

Although there are a great many designs of these circular mesh full hose in vogue, they are all basically tuck-stitch patterns. Some of the simpler ones are made by a tucking course every several courses. A waffle effect can be produced by a combination of tuck stitches and drop stitches. The majority of the meshes are made on machines equipped with selecting devices where tucking can be performed according to some pattern, producing a mesh that approaches that made on the full-fashioned machines. Besides the mesh legs and insteps, the circular mesh hose have adopted so-called lace tops. Tuck-stitch patterns are inserted in the tops of the full hose to enhance their appearance on the counter and to act as anti-run courses.

Rayon in full-fashioned hosiery has not reached very great proportions. Rayons with extra-fine filaments and consequent softness and flexibility have been used with success on the intricate full-fashioned machines. Probably the obstacles besetting the success of other rayons will be overcome and rayon full-fashioned full hose will become popular. The unusually low price of silk has retarded experimenting with rayon on full-fashioned machines for the present.

Even the cuprammonium fiber acts differently from real silk to an extent which renders special settings necessary. The rayon manufacturer has conducted research along these lines and is ready to recommend the settings that have been found best suited to the handling of rayon on full-fashioned machines.

The ever-increasing popularity of brightly colored socks has opened a large field for rayon. The luster and affinity of rayon for bright colors has made it popular for this sport fad. Socks, as distinct from half hose, have spread from children to women and, finally, to men. Since they are worn almost solely for sport, the brighter the colors, the better. Very little delustered rayon is used in socks, the luster being desirable rather than objectionable. There is a tendency toward using rayon as a decorative medium with Durene as a base. A great many of the socks are made by plating rayon over Durene, as shown in Fig. 3. The right-hand sock illustrated has a plain turn-down cuff, and the other shows a ribbed cuff with stripes as a decorative motif. The sock on the left is in red, white, and blue, produced for the Washington Bicentennial celebration.

Socks and Anklets

There has lately been placed on the market a great variety of socks and anklets. In the cheaper lines, especially for women, one will notice delustered rayon socks of almost any color and pattern. In the more expensive lines, plated socks are more prevalent, and more harmonius colors with less variety in design will be noted. In the children's field there are few all-rayon socks except in the cheaper lines. Mother Goose motifs of rayon plated over cotton on the cuffs are popular. The new ribbers which insert colors in horizontal and vertical stripes have produced some striking cuffs for all sizes of socks. Infants socks of rayon over cotton in solid colors of pink and blue are hard to pass by on the store counter without a second glance.

Courtesy of Hub Hosiery Mills

Fig. 3. Children's socks with cuffs of rayon plated over Durene

One thing that will be noticed on walking through the hosiery departments of retail stores is the growing tendency toward branding hosiery with rayon trade names. This is largely a new idea. Heretofore a hose was cotton, wool, silk, or rayon, but now it is stamped with the trade name of the rayon of which it is made. If a customer is pleased with the wearing quality, appearance, and price of hosiery made from one brand of rayon, will she always buy that brand?

Quality IN RAYON

IS FALL AIM OF PRODUCERS

THE rayon yarn industry enters the fall season determined to exercise every possible effort toward promotion of quality in the manufacture of synthetic yarn merchandise. Keeping in step with strong consumer call for quality in textiles, the producers have become unusually watchful as regards the standard of fabrics made from their yarns. The problem, it must be admitted at the outset, is an acutely difficult one. The rayon industry has suffered at least as much—some critics say more—than any other textile division with respect to the collapse of quality during the last two years. And the rayon industry, being the youngest of textiles, could least afford such a collapse. Youth has its advantages, however, chief among them being the capacity for a quick come-back—and rayon is now ready to wage what may prove the most significant campaign for quality acceptance ever conducted by this industry.

The movement starts under a handicap in that it will be conducted individually by firms; ruthless competition in recent months has eliminated all immediate prospect of cooperative action. However, the producers are alert to the needs for quality emphasis, and they are stressing this thought in their promotional effort.

The keynote of the fall sales appeal may be summarized as follows: The day of tested merchandise is here. It is not enough that rayon products be well styled; they also must be well made—that is, they must be manufactured so correctly as to meet the exacting standards now being set up by distributing divisions.

What then are rayon's prospects in selling to the test-minded buyer and consumer? Let us take the bright side of the picture first. Synthetic yarn dress goods are in an unusually good position, thanks to attractive merchandise and low prices. Yarn prices today are such that there is little excuse for cheapening the line. Woven goods deteriorated badly during the general decline of quality, but now there is a strong trend to more careful workmanship. Fall showings of taffetas, crepes, twills and voiles, include a broad range of truly beautiful—and well-constructed—fabrics. Early response has been satisfactory and the outlook for these lines is encouraging.

However, the quality movement in synthetic yarn dress goods faces one difficult problem, namely, the inclusion of numerous rayon lines in the 20c. offerings of F. W. Woolworth & Co. With the word "rayon" being popularized in that field, the term obviously becomes a handicap when high-grade evening dress fabrics of acetate yarn content are promoted. Producers believe that they have partially solved this problem by dropping all use of the word "rayon" in promoting acetate yarns; brand names are used instead. There is a growing feeling, however, that further educational effort in this direction will be necessary.

Linings, which started so auspiciously two years ago, now are one of the weak links in woven fabrics, as regards quality. While numerous standard manufacturers continue offering linings of viscose warp and acetate filling which are satisfactory in construction, price pressure by clothing divisions has brought into the market a regrettably large quantity of inferior, debased fabrics.

Draperies suffered practically no debasement of quality, and the offerings for the coming season are a credit to the rayon industry both as regards manufacture and styling. The new types of acetate marquisettes are especially satisfactory. Producers regard draperies as one of the most promising outlets at present. The current tendency is toward low-luster fabrics in a wide range of yarn mixtures. Bedspreads also came through the degrading period without surrender of quality, and the productive outlook at that end is encouraging.

Which brings us to the dark side of the picture—knit goods. Making all possible concession for the various quality offerings in underwear, hosiery and outerwear, the fact remains that inferior workmanship is—or rather has been—rampant in this division. The rayon underwear fabric problem, so much discussed, promises to solve itself by the simple expedient of elimination. There is still a great quantity of badly made underwear goods available, but the price pressure is driving from the field numerous firms which specialized in fabrics of "sleazy" construction. The low prices of yarns also help to solve this problem, since knitters now tend to buy better grades of yarn; producers are resigned to 29c. and 39c. levels for rayon underwear, but they find solace in the fact that this merchandise today is of a better quality. It is anticipated that the new dull yarns will further stimulate interest in rayon knit goods, and producers hope that they have arrested the downward trend of quality in underwear lines.

Full-fashioned hosiery made from synthetic yarns, maintained standard moderately well, despite acute price pressure. Rayon seamless suffered a sharp drop in quality which was prejudicial to consumer acceptance, but producers are hopeful that low prices plus a steadier market will aid toward improvement of this merchandise. Outerwear deteriorated somewhat, the decline being partly offset by the development of numerous well-made and well-styled lines.

Summing up, it will be seen that the bad is more than balanced by the good in rayon's quality picture. Producers are confident that this fall offers them unusual opportunities to build recognition for standard, and they will work more closely than ever in helping their customers make satisfactory goods. To quote one rayon executive:

"We are proud of rayon in the raw—we have a right to be. And we want to be equally proud of it in the merchandise."

Rayon Jerico

A CREPE OF DIFFICULT CONSTRUCTION

By John Picone

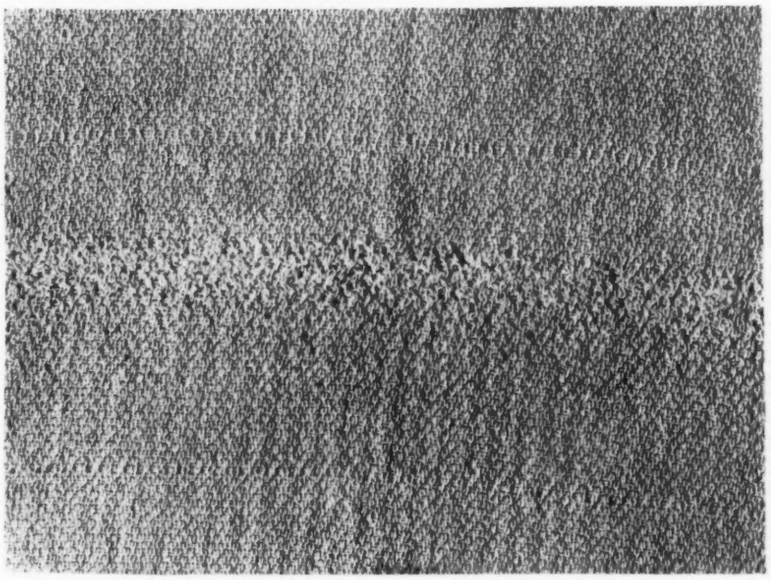


Fig. 2. Incorrect Jerico at top, correct at bottom (magnified about twice)

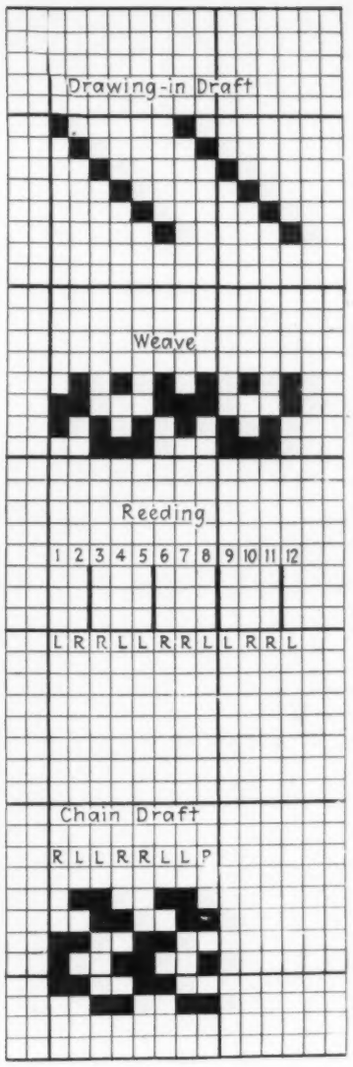


Fig. 1. Correct layout for Jerico crepe

◆ *The walls of Jerico—or Jericho, as King James spelled it—would be rebuilt at a rapid pace this season if the progress of the old Joshua-ruined city could by any chance be made to parallel that of its rayon-crepe namesake. A surprising number of inquiries are being made by rayon mills regarding the construction of this material; and the other day a reader asked, "When are you going to publish an article on weaving Jerico? We have been counting on you to pull us through!" Here is the article.*

AT THE present time many mills are having considerable difficulty in producing the right effect in Jerico crepe, and the writer knows for a fact that some mills have worked on this fabric for several days without satisfactory results—finally resorting to re-entering and re-reeding of the warp. The entering of Jerico is in itself a time-consuming task, as the warp has a mean disposition to curl and snarl. It is recommended that small weights be attached to each section in entering, as these will hold the warp ends from twisting around each other.

Trouble with this fabric is not confined to the warp, however. Filling troubles include knot holes, unnecessary loom stoppage, and considerable breakage of the filling. The first of these may be minimized by providing for a large loom shed and closing the shed early. Some stoppage can best be overcome by cutting the well of the center stop motion deeper and lengthening the fork prongs. Other breakage is due to backlash and to heavy pickage, causing the shuttles to quiver and ride unevenly. The writer has been successful in attaining better than 93% efficiency on Jerico largely by applying a heavy fur lining, such as possum, deep to the mouth of the shuttle and employing very little tension—thus eliminating the filling breakage.

The fabric to which the writer refers is of the following construction: 100-denier rayon warp, 50/55 turns, with 72 picks of the same denier and twist; three ends per dent in 45s reed; 45½ in. in reed. In entering this fabric it is found best to begin with an end of left twist and insert two lefts and two rights throughout the warp. Fig. 1 shows the proper layout and loom chain.

Many mills go wrong even after they have adopted the correct entering, reeding, and weave chain. The failure lies mainly in not inserting the proper twist in the proper pick. When, in accordance with Fig. 1, the right twist is put in the top box and one pick is shot, bringing the shuttle with that twist across to the plain box, the third, fourth, and fifth shafts must be up. The top part of the fabric shown in Fig. 2 illustrates the result of starting with the wrong twist. The lower part, which has the correct raised effect for Jerico, was produced by reversing the twist.

Carrier Engineering Corp.

Looking down on spinning machines, points of most severe corrosion in viscose manufacture.

Preventing Corrosion

IN THE RAYON PLANT

By Theodore R. Olive

Assistant Editor, "Chemical & Metallurgical Engineering"

CAREFUL selection of construction materials is essential in the synthetic fiber industry, both from the standpoint of yarn quality and equipment durability. On the other hand, finding suitable corrosion-resistant materials has never been one of the rayon manufacturer's major problems, although it is one that has offered occasional difficulties, particularly as quality requirements have become more stringent.

One of the most important recent innovations in viscose practice is the use of nickel-lined tank cars for the liquid caustic soda purchased by rayon makers. Caustic corrosion of iron is not at all severe, even in the 50% concentration shipped by liquid caustic producers; but to avoid even this slight possibility of iron contamination and maintain the iron content below 0.0008% as specified by at least one large producer, contact of the liquid with iron must be prevented.

Of the other raw materials received by the viscose plant, none need cause any serious corrosion difficulties. Sulphuric acid is received in steel tank cars which are unaffected as long as the concentration is greater than about 75% H_2SO_4. Nitre cake and wood pulp or linters are shipped dry in box cars. Carbon bisulphide is shipped in steel drums and tank cars without difficulty. Chlorine for bleach is readily handled as dry gas or liquid in steel cylinders; and hydrochloric acid, ordinarily in glass carboys, although if the quantity is sufficient, it may be received in rubber-lined wood or steel tank cars. Successful application of permanent, soft-rubber linings in steel equipment is one of the more important acid-handling developments of recent years.

In the chemical end of viscose manufacture, cast iron and mild steel suffice for most of the equipment used. The steeping presses in which mercerization of the pulp to alkali cellulose takes place are built of cast iron and generally employ sheet-iron plates as separators between the bundles of pulp board. Nickel and Monel metal plates and nickel-plated sheet iron have been used for the latter purpose in some plants, an obvious improvement where exceptionally low iron content in the product is desired. The disintegrators and ripening cans used in the next steps are, respectively, of cast and sheet iron. The barrattes may be of cast iron, nickel-plate, wood, and have been built of aluminum. Viscose mixers, blending and ripening tanks are of mild steel; filters are cast iron with cotton or Monel filter cloths.

Acid corrosion in the spinning department is more severe. Coagulating-bath recovery apparatus, make-up tanks and heaters must be able to resist the action of warm, dilute sulphuric acid which is corrosive to steel. Consequently, lead and lead-lined pipes and valves, and wood or steel tanks, lead-lined, are a necessity. Principal spinning machine parts, which are of iron for the sake of strength, must be lead-covered for durability. Use of high-silicon cast iron for some smaller parts in contact with the acid, for example in valves, is feasible.

Spinning pumps and their drive equipment are of cast iron and steel, usually with a single bronze worm gear or spur gear for each pump. Connections from the pumps to the candle filters are generally iron, and from the candle filters to the spinnerets of glass or antimonial lead. The filter cores themselves and their shells

are of hard rubber, and the filtering medium, cambric or Monel metal. Spinnerets of glass, china, and porcelain have been largely superceded by those made from alloys of platinum and gold; gold and nickel, ruthenium or palladium; or gold or platinum and iridium. Tantalum spinnerets have been introduced recently.

Whether pot or bobbin spinning is employed, lead is the material used for the bath trough and for thread-guide supports. The guides themselves are of glass or porcelain. In bobbin spinning the bobbins are of glass, aluminum, lacquered iron or occasionally of lacquered or varnished paper. For the newer through-washing processes, perforated, lacquered-aluminum bobbins are generally employed. In centrifugal spinning, the pots are of aluminum lined with hard rubber, or molded from plastics of the Bakelite type. Pot covers are generally made of reinforced plastic of the Micarta type, and cover springs of bronze or Stainless steel.

Aluminum, fiber and celluloid are the most satisfactory materials for cake centers when these are to be used. Godet wheels, drip guides and spinning funnels are of glass, hard rubber or Bakelite. In pot-spinning mills, the cakes may be washed directly or may first be reeled into skeins on light metal swifts constructed of Stainless steel or other acid-resisting material. When washing is in the cake, the yarn may be supported on glass, hard rubber, nickel, Monel metal or Stainless steel rods. After removing the bulk of the water in centrifugals equipped with any suitable non-rusting basket (bronze, nickel, Monel metal or aluminum), drying of pot-spun rayon may follow; or this may be preceded by the desulphuring step. The active agent in the latter operation is a dilute sodium sulphide solution which is not corrosive to iron or ceramic materials, but adversely affects nickel and its alloys, as well as high-silicon iron and even some of the precious metals.

Desulphuring is often one step in a continuous series of operations which include all the remaining chemical treatments of viscose manufacture. The skeined yarn is hung on Bakelite, hard rubber, rubber-covered metal, or glass rods which are carried on chains beneath showers of bleaching, souring, and soaping. In this machine the bleach and hydrochloric-acid showers and catch tanks will generally be of stoneware or wood; the wash showers of brass, alumium or Monel metal; and the wash-water catch tanks of lead or wood.

Nickel or Monel metal showers may generally be used for any soap or sulphonated oil bath that may precede the final washing. The pumps, tanks, and piping for the make-up equipment used in preparing these various solutions will, as a rule, correspond in their materials to those indicated for the showers. Especial care must be taken to substitute for iron pipes, brass or other materials which will not have a deleterious effect on water which has previously been softened and aërated to remove calcium and magnesium salts and iron.

Nitro-cellulose yarn is perhaps less standardized in its production methods than viscose, although it is now produced by only a comparatively few companies. Here raw materials, in the main different from those of viscose rayon, are encountered. Instead of wood pulp or a mixture of pulp and linters, linters are used exclusively; and the yarn manufacturer will usually operate his own purifying equipment, consisting of a steel kier and wooden or stoneware bleaching tanks resistant to hypochlorous acid, which is the active principle of bleaching powder and electrolytic bleach solutions. Treatment following the bleaching includes washing with water, dilute sodium carbonate solution, and dilute sulphuric acid. Wooden tanks are suitable for all these treatments, although a lead lining is preferable in the acid bath. Following final water washing, the linters are hydro-extracted in a bronze, Monel metal, or tin-plated basket.

Other raw materials of the process include strong sulphuric and nitric acids, 95% ethyl alcohol, ether, and sodium or calcium hydrosulphite, which latter, however, may be generated at the plant from hydrogen sulphide (iron pyrites plus sulphuric acid) bubbled into sodium hydroxide solution or milk of lime. The sulphide generator will be of stoneware and the hydrosulphite solution tank of wood, Monel metal, nickel or tin plate. The acids, sulphuric and nitric, are transported, handled and stored in the usual manner, i.e., the former in cast iron and steel and the latter in aluminum or 18-8 chrome-nickel steel. High-silicon iron is also of use in the latter connection. The nitrating mixture (mixed acid) is readily handled in ordinary steel.

Various types of nitrating equipment are used. In

Construction materials for wet reeling equipment must be carefully selected.

the several variations of the pot method, the containers are of chemical stoneware, and the stirrers and centrifugals of aluminum. Washing equipment generally includes wooden vats, followed by a steel beating engine supplied with bronze knives. If hydrochloric acid must be used in the bleaching of the collodion cotton produced, the bleach tanks will usually be of wood, ordinarily pitch pine, with or without a rubber lining.

Solution of the macerated cotton in the alcohol-ether mixture is then effected in a steel drum lined with tinned copper. The resulting solution requires filtration in bronze filters equipped with tinned wire cloth to support a cotton-batting filter medium. Internally tinned copper pipes lead from the storage tanks to the glass nozzles of the spinning machines. No special materials problem is involved in the spinning bath (water) used in the wet process, or in the solvent recovery step of the dry process. Solution of the vapors in crude cresol, or adsorption in active carbon or silica gel are the methods most used in effecting recovery of the alcohol and ether. Iron and steel equipment is entirely satisfactory here.

In the cuprammonium process the construction materials offer no very great complexities, as iron and steel are suitable for the majority of steps. Raw materials consist of aqueous or anhydrous ammonia, metallic copper or copper sulphate, caustic soda or sodium carbonate, sulphuric acid, linters (or linters and wood pulp), and bleaching materials, such as chlorine or bleaching powder and hydrochloric acid. In the case of the ammonia and copper sulphate, steel tank cars and drums for the former and wooden barrels for the latter suffice. Other materials are received and stored as previously described.

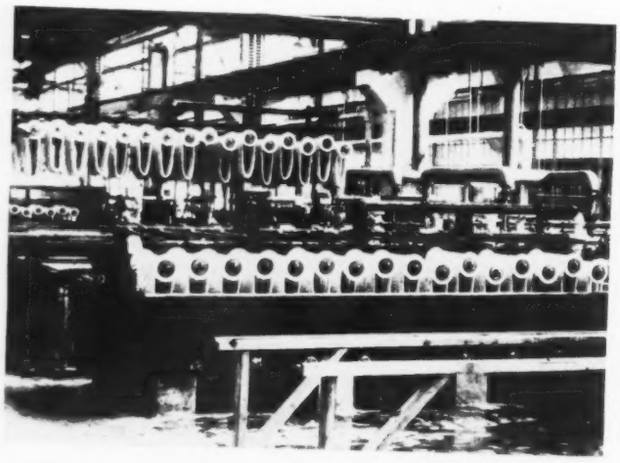
The preparation of the cuprammonium solution involves a procedure that differs in every detail. In its simplest form, as exemplified in the Furness process, copper hydroxide is precipitated in wooden tanks by the interaction of sodium hydroxide and copper sulphate. The precipitate, after thorough washing in iron filter presses, is suspended in aqua ammonia, again employing iron equipment. An iron double-arm mixer is the medium through which the linters and Schweitzer's reagent are combined to produce the spinning solution; and further iron equipment includes the dilution mixer, the final filters and the storage and deaëration tanks. Seamless steel tubes are used to convey solution to the steel spinning pumps at the machines.

In the processes of earlier development, the types of equipment do not differ materially except in that at several of the stages, refrigeration is necessary. This introduces the question of brine corrosion, which, however, can be solved by care in avoiding electrolytic corrosion of the brine system, largely through as great as practical uniformity of the composition of the iron used in the equipment, and by maintaining a uniform pH of the brine at about neutrality or a little on the alkaline side.

For solution filtration, nickel wire cloth is often used, and for the final filtration directly ahead of the spinnerets, steel wool. In the alkaline coagulation system, which is the one now commonly used in this country, nickel spinnerets and iron bath troughs are suitable, while in the acid system, lead troughs and glass spinnerets are used.

The alkaline system, of course, leaves the thread with a considerable copper content which must be removed early in the operations that follow spinning. A wash of dilute sulphuric acid, preceded and followed by a water wash, removes the copper and prepares the yarn for drying and textile processing. In the Furness process, the acid flows from its lead-lined mixing and storage tank and is distributed over the yarn which winds continuously onto a Stainless steel cylinder—constructed in the form of a cage and designed to make possible the continuous washing, decoppering, and drying of the product immediately after it leaves the coagulating bath. In other alkaline processes, the first water wash is administered on the spinning machine, after which the yarn is skeined and then decoppered in washing equipment consisting of lead-lined tanks into which the yarn is dipped as it hangs from rotating glass rollers. Similar equipment is employed for the final washing, while the centrifuging and drying (and the bleaching and soaping if used) are similar to viscose.

For cellulose acetate manufacture the principal raw materials—in addition to linters, or the mixtures of linters and pulp which have occasionally been used—consist of acetic acid and acetic anhydride, alcohol and acetone, sulphuric acid or zinc chloride, and bleaching materials for the linters. The linters are brought into solution as cellulose triacetate through contact with acetic anhydride in the presence of sulphuric acid (or zinc chloride). Acetic acid is present to act as a solvent for the resulting triacetate. Following this step it is now customary to hydrate the compound to produce a mixture of lower acetates that is readily soluble in acetone. This is accomplished through the addition of more acetic acid, and sometimes of water and sulphuric acid as well. Equipment for these steps involves resistance not only to acetic acid and anhydride, which as pure materials, out of contact with the air, can be handled very satisfactorily in copper or aluminum, but also to sulphuric acid and atmospheric oxygen. Under these circumstances satisfactory construction materials are difficult to obtain. Glass-enameled equipment furnishes excellent protection, but has not been used, so far as is known. The special steel alloys known as KA_2, KA_4, and KA_4R are suitable, as is Dick's metal. After hydration, further dilution precipitates the acetate which is washed with large quantities of water, hydroextracted in a bronze or Monel metal basket, dried, and then dissolved in an acetone-alcohol mixture, using an iron, Monel metal, or Stainless steel mixer. After deaëration, the solution is spun, usually directly into warm air, the solvent vapors being recovered in iron apparatus by a method similar to one of those mentioned in connection with the nitro-cellulose process. Acetate solution is practically non-corrosive.

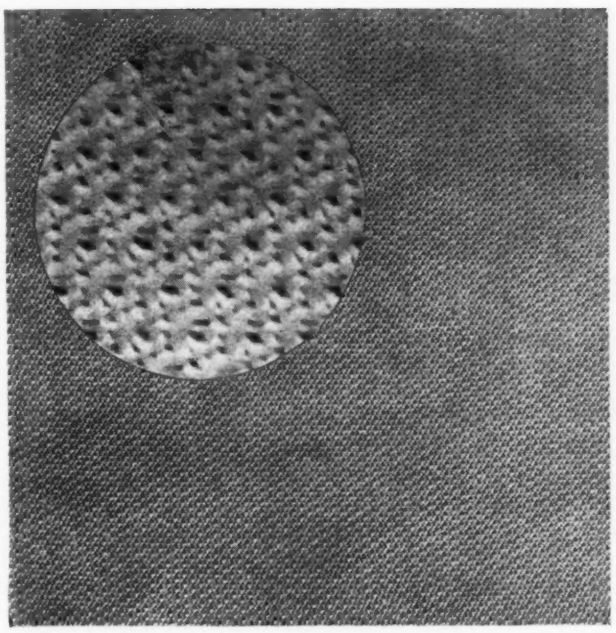


Washing and decoppering of cuprammonium yarn requires corrosion-resistant equipment.

A Danger Fades...

CHEAPENING OF RAYON OUTERWEAR AND UNDERWEAR RETARDED

By George L. Logan
Tompkins Bros. Co.



Run-resist fabric appearing principally in better grade goods

THE manufacture of rayon into underwear and outerwear garments presents to us a few different aspects as the result of developments recorded during the past year. Primarily, the position of knit rayon is strong and important and the future looks altogether bright. The cheapening of rayon underwear which was prevalent a year ago is gradually decreasing in favor of a definite trend towards higher quality of fabric. Let us hope that nothing will occur to disturb this trend. "Run-resist" garments, previously sold at remarkably low prices, are not to be found on the market today in such quantities or at such prices as was the case a year ago.

The radical cheapening of fabrics makes a poor advertisement for the yarns that go into them. The practice is particularly unfortunate in the case of synthetic fiber, because it has yet to establish a definite confidence in the minds of the consumers. Persistent damage to its reputation will prevent early realization of the almost limitless opportunities which lie before it.

One reason for the present swing toward quality lies in the intolerable extremes which debasement finally reached and the realization among manufacturers that if they were to sell any rayon garments at all they would have to raise quality generally to the level of consumer acceptance. Certain worried rayon producers have taken steps to save the reputation of their yarns, including the licensing of knitters to use certain qualities only on condition that the latter meet definite specifications for quality. The entrance of producers into the knitting field, an interesting development, has been largely to insure that satisfactory merchandise containing the producers' yarns is placed upon the market. Producers are adopting this policy in one of two ways—either establishing knitting departments of their own or contracting with mills to knit the goods under specification. The result of this practice may not have been felt to the fullest extent by rayon knitters in general as yet, but that it will ultimately have an important effect is evident.

Then there was the movement early this year to squelch the trend toward weighting and excessively stretching rayon circular knit goods in finishing. Just how much good all the assemblies and controversies on these matters actually accomplished has not been definitely determined, but that there were some benefits is unquestionable. It is even possible that the squelching movement saved the rayon circular-knitted underwear business from utter ruin.

Cheapening has also been greatly retarded by improvements in the yarns and in the manufacturing methods, which facilitate the knitting of rayon into quality fabric. Rayon as now produced is superior to older types in its winding and running qualities, and it contains more and finer filaments. It is significant that at least 90% of the rayon that is knit on any type of machine is run from cones with little or no trouble; in fact, cones have finally proved to be the most efficient form in which to feed rayon. No more care is now necessary in designing with rayon than with any of the other fibers. Although a small percentage of oil is applied to yarn which is to be knitted on all types of machines, and for loop-wheel machines steam also must be applied, these factors are being handled with a minimum of difficulty.

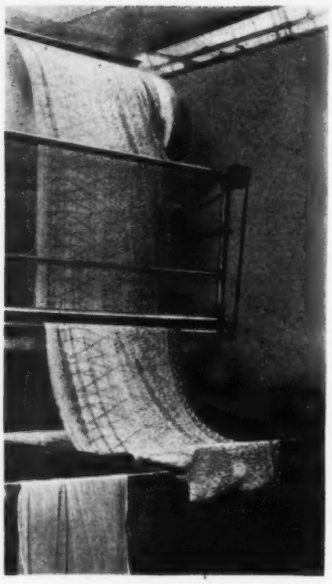
Rayon is gaining to a less extent in outerwear than in underwear. Although it is used 100% in some knitted headwear and dress goods, it is more commonly employed in combination with other fibers, such as silk and wool. Outerwear garments made entirely of rayon are often conceded to be impractical for constant wear. However, progress in developing ratiné, nub, and other novelty yarns entirely of rayon for use in heavier-weight garments is a notable achievement of the rayon producers and throwsters.

RECENT DEVELOPMENTS

IN PROCESSING

Rayon Fabrics

By Ray Cottrell



RECENT developments in the processing of fabrics consisting wholly or partially of rayon cannot be described as radical, although much effort has been expended in eliminating methods, equipment, and formulas of a makeshift character. Aside from the introduction of improved types of equipment designed especially for handling rayon fabrics, perhaps the greatest progress has been made in the treating of rayon crepes, in delustering acetate fabrics, and in solving the problem of weighting rayon with tin compounds.

For creping and scouring of the popular all-rayon crepe fabrics the ripple washing machine, with suitable additions and modifications, has many attractive features. Primarily this machine was intended for washing or rinsing delicate silk or rayon fabrics subsequent to degumming or scouring on strings. The fabric, in open width, enters the machine over rollers onto an inclined plate-glass slide and is washed down the latter by a water spray onto an endless-gauze apron creeper below. The goods are rippled, still at open width, along the entire length of the creeper (usually 30 ft.). The speed of the creeper is variable at will.

By running this type of machine (with a 75-ft. creeper), in conjunction with a slop-padding machine, it is possible to crepe and scour all-rayon fabrics by a continuous process. The padding liquor consists of 4 deg. Tw. caustic soda together with a suitable penetrant, the fabric being skied, led onto the glass slide, and sprayed with a hot scouring liquor consisting of olive-oil soap and a penetrant. The fabric is sprayed with this liquor along the entire length of the creeper and is then washed over a smaller 30-ft. creeper. The goods are then transferred to a reel machine for dyeing. It should be pointed out, however, that care must be exercised in the choice of sizing materials to make certain that they will be easily removed in the scouring process.

The most popular method of scouring all-rayon crepes consists of treating the fabric in "book" form, or stringing in open vats. In the usual method of stringing, the fabric is supported from sticks which are placed across the vat and parallel to the folds. Since several folds are suspended from each stick, there is a tendency for the folds to crowd together and offer increased resistance to the circulation of the scouring liquor. The more sticks used, the greater is the tendency, on dropping the bath or lifting the goods, to cause cracking or tearing of the selvages of these water-logged, comparatively weak fabrics.

To overcome these difficulties, the sticks are passed through the strings at right angles to the folds of the fabric, instead of parallel to them. In this way the folds hang loosely and enable the liquor to circulate freely through the fabric. By hanging the folds across the width of the vat only two long sticks (sufficiently rigid to avoid warping) need be used; and consequently the batch may be lifted out of the bath quickly and with less danger of cracking or tearing of the selvages.

Same method is applicable to delustering acetate fabrics, like taffetas, satins, and other smooth constructions, which are difficult to process by the ordinary stringing method without forming creases and cracks.

The problem of weighting rayon fabrics has become of considerable importance due to the low price of silk and the ease with which this natural fiber may be weighted. Not the least important factor with regard to the weighting of silk is the fact that the fibers are appreciably swelled, and hence possess increased covering powers. This property is equally desirable in rayon fabrics. The Clavel methods are essentially based on the fact that rayon will tenaciously absorb insoluble tin compounds rendered temporarily soluble or dispersed by the presence of an acid or protective colloid or both.

A method for weighting cellulose acetate fabric consists in passing the goods through a bath containing 10 parts of ammonium carbonate, 100 parts of albumen (or other protective colloid) and 1,000 parts of water. They are then squeezed and passed into a second bath containing 4 parts stannic chloride, 10 orthophosphoric acid, and 100 water. Washing and drying follow.

Clavel's continuous method is suitable for weighting either regenerated cellulose or cellulose acetate fabrics. The scoured fabric is passed in the open width through 10% solution of monochloracetic acid, and the goods are allowed to pile until this swelling agent has had time to render the fibers absorbent. Next the monochloracetic acid is removed by combined washing and squeezing; and the fabric is then passed through stannic chloride of 63° Tw. and is again piled to allow the tin compound to be absorbed. The cloth is now stretched to maintain open width, squeezed, and passed through a solution of sodium acid phosphate ($Na\ H_2\ Po_4$), and again piled to allow time for the reaction to take place.

After lateral stretching, the goods are passed through a solution of sodium phosphate, washed, stretched, squeezed, treated with a solution of sodium silicate, passed through an air chamber maintained at 50 deg. C., again treated with silicate, and passed through the air chamber. Finally the fabric, fully weighted, is laterally stretched and washed, and is then ready for dyeing. The method occasions a slight (though not serious) reduction in the strength of the filament, and of course, causes a loss of luster. At present, however, this loss of luster may be considered as an asset rather than a disadvantage.

PRESENT-DAY PRACTICE IN FINISHING

Transparent Velvets

By Jack Jarmak

HAPHAZARD methods cannot be tolerated in processing transparent velvets. If incorrect procedures are employed, the rich appearance for which these fabrics are noted cannot be obtained. Therefore, to obtain satisfactory results, we must have a scientific knowledge of the reactions involved, and this must be supplemented by practical observations of the effects of the various treatments to which the goods are subjected.

Fabrics of all types are usually stored after weaving until a demand for the product warrants the dyeing and finishing. In this respect, velvet is no exception. For this reason, immediately after weaving, the cloth is steam carded and sheared.

In order to dye and finish the cloth it is essential that the adhering substances be removed. Therefore the first process to which the transparent velvet is subjected is degumming. The size used on the rayon pile is removed during the same operation.

A boiling soap bath is sufficient to remove the sericin, but for large lots on a production basis it is customary to add some chemical, such as caustic soda, to aid and hasten the action. If alkali alone were used with the soap, its action on the silk would prove disastrous. For this reason in the same bath it is necessary to use buffers or protecting agents, of which there are many commercial preparations. Chemicals commonly employed as buffers include soluble oils and ground glue. These may be added in varying amounts.

When the concentration of caustic soda is high, from one to three times as much of the protecting agent, by weight, should be used. The strength of the bath should be tested, preferably by the determination of the pH value. This must not exceed 12. Ordinarily the pH is held between 11. and 11.5. The temperature of the bath is raised to 150° to 210° F. depending on the concentration of the various chemicals. The higher the caustic content, the lower temperature.

The degumming and desizing operation takes about 1 hr. Fifteen to twenty pieces, of 39 yd. each, may be boiled off in one bath. If desired, the operation can be controlled so as to use the same bath for as many as six to eight different batches.

After the cloth has been degummed, it is ready for dyeing. As a general rule dyeing is carried out in a neutral bath containing either common salt or glauber salt. The choice is governed by the shade to be dyed and the dyestuffs employed. Usually a union dyeing is made, in which direct dyes are used for the rayon pile and neutral-dyeing acid dyes for the silk back, although in some cases direct dyes alone are employed. From six to ten pieces are entered into the bath. The dyestuff, well dissolved in water, is added in small quantities to prevent uneven dyeing. The temperature is raised gradually to 170° to 175° F. in ½ to ¾ hr. Dyeing is continued at this temperature for a ½ hr. A sample is then dried and compared with the standard shade. Additions of dyestuff are made until the proper shade is attained. The cloth is then washed and finished.

One successful method of finishing transparent velvet follows:

The fabric is wet out in lukewarm water, the pile brushed with a wire card and a brush card. Brushes are placed so the water will be brushed back into the box. At the end of the box are a set of squeeze rollers. Material then enters a bath containing 1% of sulphonated oil. The cloth is again brushed in the same manner and the excess moisture squeezed out as before. The fabric then passes over a hydroextractor, under tension. It is then brushed against the pile with wire brush cards. Next the cloth passes over a steam-heated roller, and the pile is erected by a bladed wooden beater. The material is dried at 150° to 200° F., examined, and wrapped on frames.

For special purposes additional operations are necessary. These include burning figures in the pile, delustering, waterproofing, flameproofing, and adding "scroop."

Waterproofing is usually accomplished by the precipitation of a wax emulsion with aluminum acetate. Under excessive brushing and beating the wax "creams" out, forming noticeable lines and spots on the cloth. For this reason the mechanical operations connected with finishing must be altered as practical experiment indicates.

One common method of delustering is by immersing the fabric in a solution of barium chloride, followed by immersion in a bath containing glauber salt and about 1% of soluble oil. Barium sulphate, a chalky white solid, is precipitated on the fibers, clouding and dulling them.

Production of figures in the pile is accomplished by carbonization of the rayon. An ordinary printing machine is used, to which is connected a dryer. This dryer is heated to 250° F. Aluminum chloride is printed on the back of the cloth. This is mixed with the proper amount of thickening paste or gum and a soluble dyestuff which is fugitive in water, such as Indigotine. When the fabric enters the heated dryer, the aluminum chloride is decomposed, forming hydrochloric acid gas. This in turn decomposes the rayon tufts with which it is in contact. The cloth is brushed, washed, dyed, and finished.

Skein-Dyeing Rayon . . .

MODERN PRACTICE IN VAT-COLOR APPLICATION

By Robert H. Harris

MEDICAL doctors often differ in their opinions as to the proper treatment for certain ailments of the patients. Dyers also work under conditions for which no hard-and-fast rules can be applied; and they too sometimes disagree as to the procedure which should be followed. Especially is this so in dyeing a material as delicate as rayon with colors so variable in their working qualities as the vat dyes. It is certain, however, that for best results, all of the information possible must be secured concerning the vat dyes to be used, suitable equipment for dyeing must be obtained, and great care must be taken in selecting dyestuffs and in the dyeing procedure.

Selecting Dyestuffs

In general, the vat dyes most commonly used may be divided into three classes—the cold, warm, and hot dyeing. When several dyestuffs are necessary to produce a given shade, if possible, those from one single group should be selected; otherwise the slightest variation in temperature while dyeing may alter the shade. In order to get the proper exhaustion from each color, it is also best to select out of the dyestuff group those which require the same quantities of reducing agents.

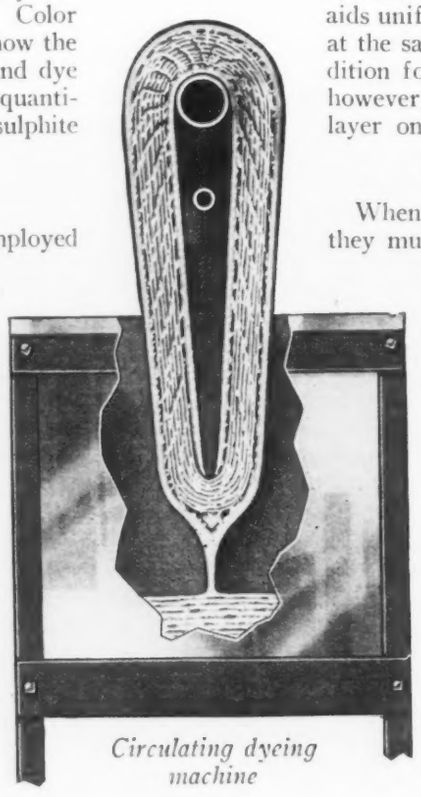
The manufacturers of vat dyes gladly cooperate with anyone using their dyes. Color cards are furnished with tables which show the best temperatures at which to reduce and dye the various dyestuffs; also the proper quantities of caustic soda and sodium hydrosulphite are given for each dyestuff.

Types of Equipment

Various types of equipment are employed for dyeing rayon in skein form, and many articles have appeared on the methods to be followed in applying vat colors on these machines. On the other hand, because of its comparatively recent development, little has been written as to the procedure enmployed with the circulating machine shown in the accompanying illustrations. The present discussion, therefore, will be confined to the methods found most satisfactory when this equipment is used.

With this machine, the yarn is suspended on hollow, stationary, perforated tubes, over a tank or container for the dyebath. The liquor is drawn from the tank by means of a pump and forced upward and through the tube or yarn supports on which the skeins are hung. The liquor level is about 1 in. below the bottom of the skeins, permitting heating or mixing of the bath without disturbing the yarn. The design of the perforated tube or yarn support is such that a large volume of liquor at low pressure is forced through the yarn, causing the skeins to rise from the tube and hang suspended in a floating position. The flow is so controlled that it completely covers the skeins both inside and out. When additions of dye or chemicals are made to the bath, the flow of the dye liquor is diverted from the skeins so that it circulates only in the tub or tank. This provides a mechanical means of thoroughly mixing the dyebath. The yarn meanwhile remains undisturbed, hanging above the tank.

The yarn is shifted at intervals by an automatic turning device which gently lifts the yarn up and over, moving it about 8 in. each time. Continuous movement of the turning device without any dwell is provided for, and is controlled by a small switch. A battery of machines can be so connected that a large lot can be dyed in a single shade; or separate shades can be produced in each unit. A feature of the equipment is the fact that there is a large flow of dye liquor and only a small movement of the skeins. This arrangement aids uniform dyeing throughout the skeins, and at the same time keeps the rayon in good condition for winding. Best results are obtained, however, if the skeins are placed in a single layer on the perforated tubes.



Circulating dyeing machine

Reducing the Dyestuffs

When dyestuffs in powder form are used, they must be mixed into a thin paste with a soluble oil or some other suitable carrier, then diluted to approximately the proportion of 1 lb. of dyestuff to 2 gal. of water. (Larger volumes of water are used for some special dyestuffs.) Dyestuffs in paste form require half the quantity of water in the reducing bath. Caustic soda is added, the solution brought to the correct reducing temperature, and sodium hydrosulphite powder is sprinkled in and stirred well to complete reduction. This leuco solution should be allowed to stand for approximately 20 min. Meanwhile the skeins may be placed on the machine and prepared for dyeing.

Rayon skeins wet out quickly, but a treatment of the skeins in a

wetting-out bath immediately before dyeing aids in producing level shades. The wetting-out bath should be prepared, brought to the proper temperature for dyeing, and circulation started. In the wetting-out bath should be a penetrant, a retarding agent, and sufficient caustic soda and sodium hydrosulphite to keep the dyestuff in reduced form. These chemicals are figured on the volume of the dyebath; and since the circulating machine requires only a comparatively short bath, smaller amounts of chemicals can be used than with most equipment.

Various penetrants and dispersing agents are recommended for vat dyeing, and we find a wide difference of opinion as to the best to be used with rayon. One penetrant which has been found satisfactory is a combination of cresylic acid and sulphonated castor oil. Chemicals to give a more thorough dispersion of the dyestuff are also used by many dyers; pyridine is an example.

In dyeing rayon the percentage of retarding agent should be higher than that used in dyeing cotton; some authorities recommend double the quantity. Animal glue was formerly used for this purpose, but has been replaced largely by other products more easily soluble which are sold under various trade names.

The percentages of caustic soda and sodium hydrosulphite will vary both with the type and the amount of dyestuff used. The proper percentages with which to start the bath may be determined from tables supplied by the dyestuff manufacturers. As the dyeing progresses, more of these reducing agents may have to be added in order to keep the dyestuff in reduction.

Dyeing Operation

When the rayon has been thoroughly wet out, the dyestuff, previously made up and reduced in a separate vessel from the machine, is added in several portions, preferably poured through a fine-mesh strainer into the machine. With many of the vat colors the greatest problem is a too rapid exhaustion of the dyebath; and if too much of the dyestuff is added at one time, streaks are certain to result. With each addition of dyestuff, the bath should be mixed thoroughly, and the yarn given a few continuous turns as the fresh liquor saturates them.

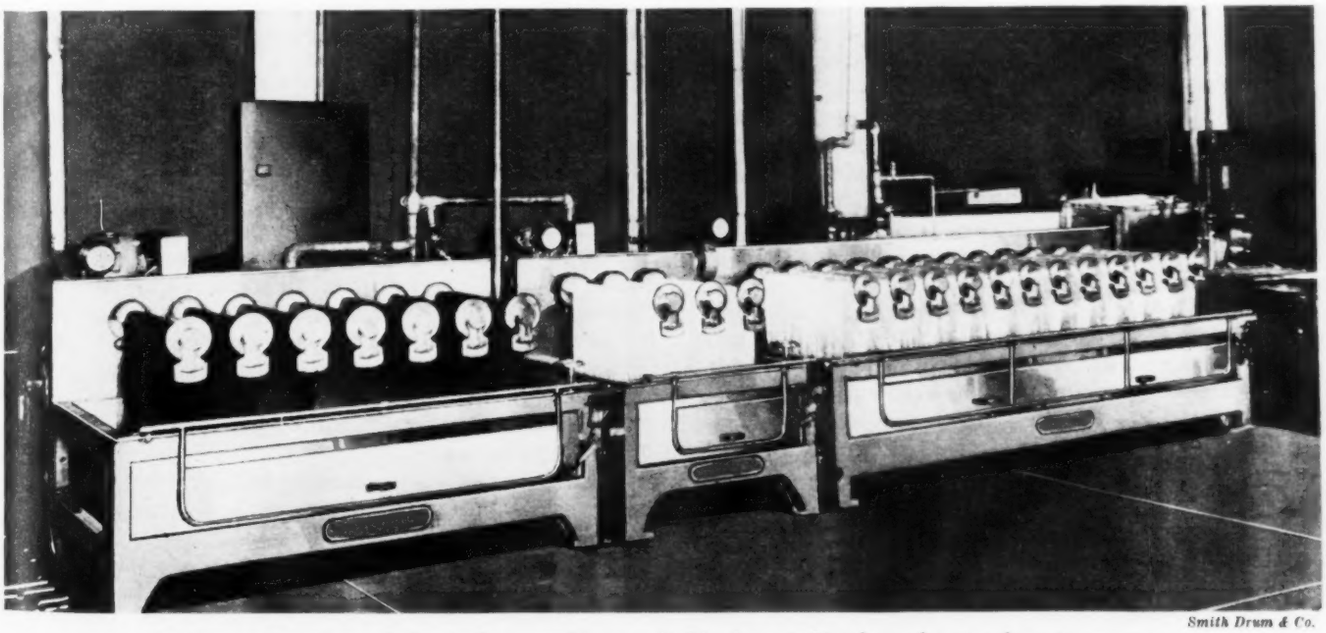
Test papers to determine whether or not the bath is in the proper state of reduction may be prepared by dyeing strips of filter paper with one of the vat colors which show a marked change in shade from the oxidized to the reduced state. A yellow, which changes to dark blue when reduced, is often used for this purpose. To test a bath, a small piece of this dyed paper is dipped into the bath, and if it changes immediately to blue, the bath is considered to be in proper condition.

Aftertreatment

When the dyeing has been completed, the rinsing, oxidizing, souring, and soaping operations are easily and quickly accomplished by a simple manipulation of the valves of the machine. Fresh water rinses the yarn while the dyebath drains from the tub. Oxidation may be accomplished by a treatment with sodium perborate if brightness of shade is desired, or with potassium bichromate and acetic acid if a slight dulling of the shade is not objectionable. The latter treatment is usually quicker and cheaper. When the sodium perborate treatment is used, the yarn should be given a slight rinsing with acid to neutralize any traces of caustic soda left in the yarn. Finally, the yarn should be treated in boiling soap solution to develop fully the shade.

▼

The skein dyeing of rayon by the use of machines other than the circulating type mentioned above and by the hand tub was described in an article which appeared in TEXTILE WORLD, *Sept. 26, 1931. As pointed out, the most important points in applying vat colors are retarding the speed of dyeing to prevent unevenness and handling in a manner which keeps the skeins in windable condition.*



Smith Drum & Co.

Battery of modern skein dyeing machines suitable for application of vat colors to rayon.

The Editor Says:

SOMEBODY had a bright idea last month. The silk dyeing trade was to name a "czar." . . . . Some day, we hope, that thought will be the copyrighted property of newspaper columnists. It has no place in serious discussions. Throughout our entire experience in the textile industry we have been electrified by recurring news of a "dictator' in one branch or another. The only thing that has never been explained to us is what they'd do with a "czar" if they got one. . . . . We're not thinking of legal restrictions just now; we're thinking of the temperament of the average manufacturer. If he won't sell at a profit to protect his own bank account, he won't do it for a hired man. . . . . This "czar" business is a joke but, for us at least, it's losing its humor.

❖

POSSIBLY we are a little previous but we have been thinking about the effect of recovery upon the various programs of concerted action set up by the textile industry. In the face of discouragement and without any opportunity to show real profits for their members, the organizations responsible for those programs have carried on—and have averted catastrophe. With one major exception, they are in existence today. . . . . In good times, there is a tendency to discard such programs as "not needed." And yet, the future seems to promise an opportunity for positive, not merely negative, returns from them. Instead of a "czar," the industry will continue to need the collective interpretation and application of its best individual thinking.

❖

THE wage question isn't just a "labor" problem. It is one of the most acute managerial problems a manufacturer has to face. . . . . Look over the record of the last year or two in textiles. A good deal of the suicidal price-cutting would have been impossible without wage-chiseling. Mills with obsolete equipment and low capitalization have been able, by reducing wages to rock-bottom levels, to produce goods as cheaply as modern mills with practically new machinery. It doesn't take an economist to see the significance of that fact. Even the "survival of the fittest" advocates must see that their pet law is threatened. That is, of course, unless the "fittest" is not the man who keeps his equipment in shape, who knows how to run his plant efficiently, who exercises judgment in the purchase of raw material, and who merchandises his goods aggressively—but the man who can pay the lowest wages and get away with it.

❖

MANY manufacturers, no matter how hard they may have tried to play a fair game, have suffered unfairly as the result of the wage tactics of others. Not only have they been unable to find a fair competitive basis of operation, but they are suffering now from rather indiscriminate antagonism on the part of workers. Recent labor troubles in the South, for instance, have been followed by unrest and resentment in plants where such an attitude is entirely unwaranted . . . The entire situation demands intelligent and far-sighted handling. And those few textile manufacturers who have voluntarily raised wages in the last month are neither philanthropists nor radicals; they are merely good businessmen.

❖

WE GOT a kick out of the U. S. Steel Corp.'s announcement that it had authorized an outlay of $5,000,000 for replacements and improvements in its plants. Two days before, we had read that steel mills were operating at 16% of capacity. . . . . The "kick" was three-fold: The announcement reflected a belief in nearby improvement in this basic industry; it promised an impetus to capital goods production, so vital to general recovery; and it set a good example. . . . . "House-cleaning" is the way Myron Taylor expressed it. There's a deal of house-cleaning to be done in the textile industry. We don't expect any $5,000,000 programs—but we do believe that some modest textile announcements are in order . . . . . As an added inducement, it might be pointed out that it's rather easy for an industry to make the first page nowadays.

❖

WE ARE once more receiving serious questions as to our opinion on the outlook in textile mill securities. For the last few years, this question has been asked only by friends who were trying to be funny. . . . . We wish we were a professional financial-market writer so that we could hand out one of those dictums which prove to be right no matter what happens. Certainly, current financial statements of various companies provide material for a comfortable "straddle." One company loses over a million dollars; another makes a quarter of a million in the same period. We could go on that way for some pages. . . . . Here's the only real dope we have: That a textile company which has stripped its fat, kept its equipment up to date, and developed sound management policies in both production and merchandising, should be a good "buy" for a five-year pull. We'll never get in trouble on that one. . . . . At any rate, there is a growing sentiment in some financial quarters that (selected) textile stocks offer good investment possibilities. [The "selected" is ours.]

Flexible Work-Week

DESERVES SERIOUS ATTENTION OF TEXTILE INDUSTRY

By Henry P. Kendall
President, The Kendall Co.

Henry P. Kendall

◆ *Mr. Kendall is one of six Massachusetts citizens who were appointed by Governor Ely to the Massachusetts special commission on stabilization of employment—a body which is doing fundamental work. His concise statement of the scope and purport of the flexible work-week plan, prepared for* TEXTILE WORLD *and printed below, is particularly timely.*—Editor.

THERE is no more vital problem before us today than stabilizing employment, that is, bringing about the re-employment of people now out of work and the creation of conditions whereby reasonably regular employment may be had at all times by the person who wants to work. Between nine and ten million people are now unemployed. There are probably about thirty-six million working. This, of course, is an abnormal situation. It is the result of unusual conditions. They are conditions however which may recur, and in more alarming proportions, unless we do something. It is estimated that even in good times there is a labor surplus in the country of about three million. Technical improvements, labor saving machinery of all kinds, chemical discoveries and other factors have brought about an acceleration of production facilities during the last decade which have created a constant menace to a worker's employment.

This whole great problem of employment stabilization is a challenge to every thinking citizen. We must do something about it or civilization is doomed.

In facing the problem it is human to long for some panacea type of treatment, some magic wand which may be waved over the economic order, to bring stability where there has been instability, and jobs and earning power where have been unemployment and need. For over a year I have been a member of the Massachusetts special commission on stabilization of employment. Labor, capital, and the public have been represented. There is a widely divergent point of view brought to the problem of stabilization of employment by individuals on this Commission, but there is common agreement that in order to get somewhere with the solution of the problem it is necessary to do a great many things and to do them reasonably quickly and thoroughly.

Several weeks ago the Commission was invited to meet with a group from New Hampshire headed by Governor John G. Winant. We heard a plan proposed by a young engineer, Harold M. Davis of Nashua, N. H., for re-employing workers. The simplicity and directness of the plan made an appeal to all who heard it. Our Commission felt that a wider audience should be told of the plan. Accordingly a meeting was arranged in Boston. Governors, industrial leaders, economists, and a distinguished array of citizens held an all day conference which aroused attention throughout the world. The plan was brought to the attention of President Hoover who asked for a conference in Washington. Six conferees from New Hampshire and from Massachusetts met with the President, the Secretary of Commerce, and the Secretary of Labor.

The Davis or New Hampshire Plan is not strictly a five-day nor a six-hour arrangement. It is a plan for the flexibility of the work-week. It would probably operate differently in any two industries or in any two business offices or shops, but in all cases the principle would be the same. The plan stresses the possibility of putting three million people to work. All employees now at work would accept a reduction of hours, thus making room for new hands. The wages of these new hands would be paid jointly by the old employees, by the executives, and by the stockholders. Through these pooled contributions, that of the employees would be as low as 3% and would not exceed 6% in any instance.

The important thing about this plan is that it brings into the picture a practical framework. Any company in any industry can take the plan and, given the will to effect it, put more people to work without increasing costs and without adding any new equipment or floor space. The plan could be put into effect in the textile industry. There are plenty of people available who can spin, plenty available who can weave and do other tasks. The crux of the matter is more in the will to do it than in any other feature. If the plan has, as many people feel who have examined it carefully, the "makings" of 10% more jobs than now are available, it is worth doing.

People who now are dependent on public relief would be earning something. These earnings would be poured into the channels of trade. There would be no more purchasing power in the country than there is today, but it would be a quicker and more effective type of purchasing power. A shortening of working time for individuals is not a temporary necessity. The movement for shortening the total hours of work has been exaggerated by the depression and not created by it. This simple, straight-forward device which has been put to work and has been found effective in many companies, is worth the serious attention of the textile industry.

Angora Rabbit Wool . . .

CHARACTERISTICS, SOURCES, USERS, HISTORY AND PRESENT STATUS

By William H. Butler
Boston, Mass.

"LAINE de Luxe," or wool of luxury, grown on the backs of the semi-oriental rabbit known as the Angora, came into the limelight in the United States during the boom period before 1930. Fully manufactured items of this material, such as the "millionaire's waistcoat," had been arriving from abroad for several years in a small way, but at the peak of the boom American spinners and knitters of luxury yarn developed a strong interest in the commercial possibilities for themselves of angora wool.

Though comparatively new in the United States, this wool has for 100 years or more been grown by the peasant women of France, and spun by them on hand-made machinery. The peasants of Savoy, Flanders and Switzerland, have been the means of spreading the cultivation of this breed on European soil. The angora rabbit is indiginous to Asia Minor, the name being given to a variety found in the district of Angora where not merely the rabbits, but the dogs, cats, and goats (though not the sheep) are endowed by nature with particularly fine coats of hair.

A prize-winning Angora rabbit

Angora's Characteristics

True-bred angora is recognized by the silky fineness of the wool running to a curl at the end. The fleece compares in fineness to the South American vicuna, is of great tensile strength, very light in weight, pure white in color, apparently warmer than sheep wool, easily dyed, and, even in the long six or seven-inch fibers, the silky fineness is retained from end to end. The best method of obtaining the wool is either by combing the rabbit and obtaining shed fibers of fairly uniform length, or by the more commercial method of shearing the animal, which, however, yields fibers of irregular length. Angora rabbits in the Pacific Northwest are said to be clipped three times annually, yielding about 4 oz. each clip. Wool obtained by combing is the best grade of wool, and brings about $8 per lb. In some of the best-bred animals the annual yield has run as high as 20 oz.

Bulk of demand is for white angora and the greater part of the output is white. However there is some gray wool also occasional fawn, as well as small quantities of gray and white. All of the latter can usually be successfully dyed pastel shades. The staple ranges in length from 1 to 7 inches. The choice wool from the buyers' standpoint is long in staple, free, clear, bright, pure in color and lustrous. Matted fibers constitute the chief defect and of course tend to reduce the commercial value of the wool.

There are many sources of supply in the United States, particularly on the Pacific coast, but as there seems to be minimum coordination between producers, and as individual clips are insignificant from the mill standpoint, most manufacturers have shown only a casual interest in farm offerings and have preferred to import sizable quantities already graded and available for immediate use. For farmers and others to connect with mills on a commercial scale, it would be necessary for local buyers associated with the growers' associations springing up in various parts of the country, to collect the individual clips at convenient district or country centers for packing, and sorting if necessary, so as to be able to offer a worth-while amount of raw material to mills which hitherto have been dependent upon imports. The average unit import shipment from France is 800 lb.

Among some of the prominent angora breeders in the Washington Angora section are C. V. Crumley, Silver Star Rabbitry, Kent, Wash.; E. S. Payne, Snohomish, Wash.; H. B. Pederson, Lake Samish, Bellingham, Wash.; Cecil Cosper, Walla Walla, Wash. The Peoples State Bank, Lynden, Wash., has also sizable quantities of angora under its control.

The use of this wool in American mills is still in a somewhat experimental stage, but in France most difficulties have been overcome and there are several mills in the vicinity of Paris spinning angora yarns, one mill reported to be producing 4,000 lb. monthly. In making yarns on the woolen system a single cylinder breaker and a single cylinder finisher card may be used. For spinning on the worsted system, the Noble comb may be adjusted satisfactorily, but great care must be taken to prevent large noil output. Cards and combs have both to be adapted to the lightness and fineness of the fiber.

In home-craft work where only pure angora is used in the production of yarn, the Swedish flax wheel gives good results. This wheel is imported from Sweden, via England, by the New England Farm and Garden Association. The Scotch type and the early American style flax wheel may be used effectively, but the large early New England wool wheel gives less satisfactory results.

In the following list of mills which have been interested in the consumption and manufacture of angora, no completeness is claimed and in some cases little perhaps beyond an experimental stage has been achieved. The

constant arrival of foreign raw material indicates a substantial utilization of this high-priced commodity, but in what particular mills cannot be ascertained with any accuracy. In general Pacific Coast mills rely on the native product, while New England mills use imports.

Rhode Island apparently has been the chief center in the experiment of producing this luxury yarn and a partial list of interested mills follows: Lafayette Worsted Co.; French Worsted Co.; Masurel Worsted Mills, Inc.; Lumb Knitting Co. Other New England mills which have worked the material, are J. M. & E. M. Abbot, Ltd., Lowell, Mass.; Cheney Bros., South Manchester, Conn.; Hartford Woolen Co., Hartford, Vt.; Kezar Falls Woolen Co., Kezar Falls, Me. On the Pacific coast, the Pendleton Woolen Mills, Portland, Ore., and the Laine DeLuxe Corp., Bellingham, Wash., are the principal spinners. The Finer Textiles Co., Seattle, Ore., has successfully marketed finished products such as infants' wear, sweaters, golf hose, berets, etc.

New England mills experimenting with this type of wool have had little or no contact with local growers chiefly, it is said, because of the uncertainty of supply. Attempts are being made to buy and collect the wool to be packed for substantial supply to mills. Steinberger Bros., Inc., 663 Broadway, New York, advertise for offerings of angora, paying spot cash on receipt but at prices named by the buyer and possibly too low to stimulate increased production by breeders. Furida, 35 West 33rd St., New York, has also shown interest in this wool and its semi-manufactures. Weber & Bachan, 24 University Place, New York, put out special shipping cartons for growers of the angora, offering it is said from $3 to $7 per lb. depending upon the quality and grade of the wool. In Philadelphia, the American Angora Wool Co., 4736 Old York Road, offers all grades in quantity; F. W. Walter, 3446 North Broad St. has also handled angora shipments to mills successfully. In Boston, Edgar Heap, an importer of specialty raw materials, has brought in occasional quantities of English-grown angora. The pioneer promotor of the angora wool industry in New England is D. P. Houle, High St., Newbury, Mass., who is also the secretary of New England Angora Rabbit Wool Producers Club.

Baby's cap of rabbit wool

In other parts of the country the angora, as the only animal of the 18 breeds recognized as standard by the National Rabbit Federation which does not have to be killed to yield the owner a profit, has come into the limelight as a fleece-bearing animal, which, under selective domestication, is yielding favorable results. Angora clubs and associations are found as far apart as North Carolina and Wisconsin, but the chief group is perhaps the Angora Breeders Association of America, G. A. Griffiths, secretary, 220 South Fifth St., Jeanette, Pa.

Increasing interest in the commercial possibility of this little animal has lead to a growing literature including "Angora Wool Production" and "The Angora Wool Farmers' Guide," both handled by the "American Fur Animal" magazine, Charlotte, N. C.

Imports of angora wool yarn are of recent occurrence. There were no recorded imports in 1929 and so far as it is known the first arrival of this commodity was in June, 1930, when demand developed almost overnight. Some 84,200 lb. arrived during the rest of the year at an average value of $6.76 per lb. Of this amount 78,817 lb. arrived in New York, 2,301 lb. in Philadelphia and the balance in Los Angeles, Chicago, and parts of Ohio. Of the yarn imported, 62,500 lb. came from France and 21,000 lb. from England. From Germany and Hungary there were a few small sample lots.

Imports for 1931 declined to 37,456 lb. at an average value of $6.36. For the first three months of 1932, the amount imported was 2,688 lb. at an average value of $5.44. The duty on these yarns assessed by the tariff act of 1930, was 40c. per lb. and 50% ad valorem.

Works Best in a Mix

The average price of this imported yarn was about $6.60 per lb. without duty, and by coincidence the average price of the imported raw material over the same period was also $6.60. This suggests rather conclusively that the angora yarn imports were not manufactures of straight angora wool. As a matter of fact it is admitted that the raw material is so difficult to manipulate on the usual mill machinery, owing to its light and fluffy character, that other and more tractable materials such as fine Australian wool, choice noil, staple rayon, or silk waste yield more satisfactory mixes for carding and combing purposes.

A New England grower of angora wool, not being able to connect with any mill willing to spin relatively small quantities, has up to recently been sending the raw material to Ireland. A casual glance revealed that the yarn returned was not an unadulterated product of the original material. Near the close of last year one New England mill was using about 200 lb. of angora monthly in connection with silk fibers, paying around $8 for the angora, dusted and graded for immediate use.

The total amount of angora imports into the United States for the period of 1929-32 is known only in part owing to the customs offices of New York and Philadelphia failing to give it a separate classification, including it either in wool or mohair arrivals. Boston, however, has given this item separate classification, and from records kept by A. M. Pinfield, of the Statistical Department of the Custom House it is ascertained that for the full year of 1929 about 6,000 lb. arrived in Boston from France; that in 1930 imports amounted to 14,000 lb. at $6.89, while for 1931 no less than 20,000 lb. came in at $6.39. Imports into Boston for January-March this year have been 2,000 lb. valued at $5.25. This material pays the same duty as wool, 34c. per lb. clean content and is assessed as 100% clean.

During the last few months mill interest in angora rabbit wool, possibly because of the unusual depression in general business, has been on the wane, but production and utilization of angora as a home-craft industry has made some widespread gains. Considerable attention has been directed to the possibilities of the angora as a financially valuable adjunct to the small farming industry. Meanwhile, mills with a wealth of experience already gained in the manipulation of this material can await an eventual resumption of demand.

Imitating Hand Crochet

IN WEAVING JACQUARD BEDSPREADS

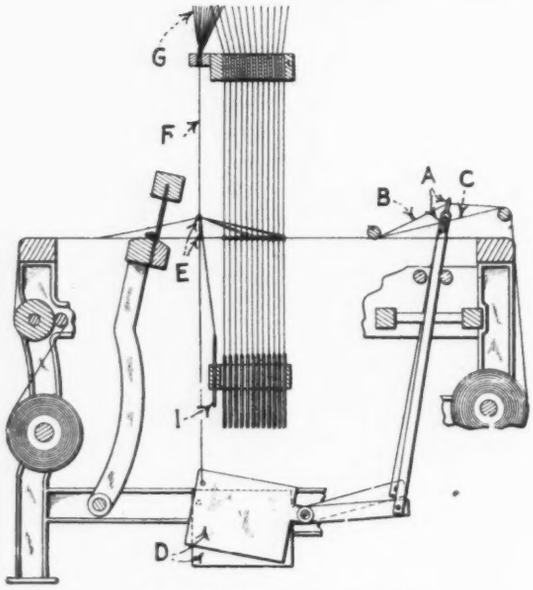


Fig. 1. Slackener mechanism

AN INTERESTING, although simple, method for effectively imitating hand crochet in the machine-weaving of jacquard bedspreads has been developed by M. D. Gourlay, manager of Utica Looms, Inc., Utica, N. Y. A leno weave is of course employed in the imitation; but the design is subject to any desired variation without necessary repetition across the fabric, and there is little hindrance to the weaving of side and cross borders, no matter how complex the center design may be.

The necessary provisions for weaving this type of design can be made, as illustrated in Fig. 1, without substantial change in a standard jacquard loom. This diagram shows particularly a warp slackener mechanism working in association with the doup mechanism in such manner as to enable the selected warp ends or groups of warp ends to be woven independently of the other warp ends or selected ends whenever desired. Two individual warp slackeners are shown at *A*, each holding, in this illustration, two adjacent warp ends, each pair designated as *B* and *C* respectively. It will be noted that these slackeners are normally held in an up position by the counterweights *D*. These weights, however, are connected to and may be pulled up by the mails *E*, in turn connected to the heddle connections *F* of the design or standard harness *G*.

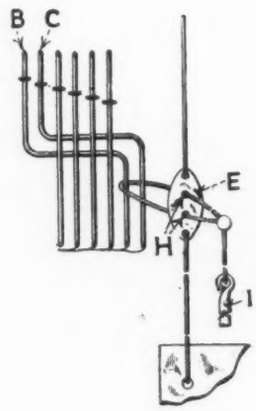


Fig. 2. Doup arrangement

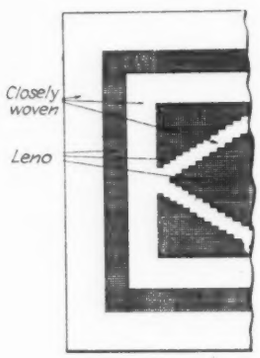


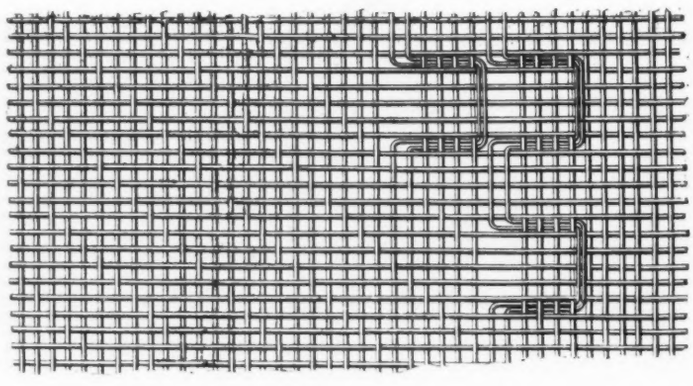
Fig. 3. Possible arrangement of design

Fig. 2 shows how apertures *H* in the mails hold the doups. To the lower end of each doup is attached a weight *I*.

Slack is normally maintained in the selected groups of warp ends; and when the standard harness and doup are raised, the slack is released. Thereupon, each doup pulls its selected warp ends under the adjacent series of unselected warp threads and up on the other side. Then the ground harness, which remains inoperative during this operation for a space of say five picks, is again operated to pull the warp ends back and up in the usual manner.

A multitude of variations are possible with this mechanism, which is patented (No. 1,718,816) by Mr. Gourlay. Fig. 3 gives an idea of the type of work which may be turned out on a loom so equipped. Fig. 4 illustrates a possible weave. "This weave," states Mr. Gourlay, "is so shown as to bring out most clearly the path of the warp ends acted upon by the slackeners, and that the cooperating warp ends, shown in that figure as four warp ends extending vertically through the two deflected warp ends, in the actual fabric also pass transversely relative to these two warp ends in substantially the same manner as the two warp ends are shown to pass relative to the four, thus enabling both sets of warp ends to be drawn from the same roll."

Fig. 4. (Below) Type of weave



Successful Merchandising

OF HIGH GRADE HOSIERY BY WALTER FRED MILLS

SE-LING
the aristocrat of exquisite
HOSIERY
By special appointment to the beautiful women of America . . . the exclusive adoption by leading motion picture producers', and stylists is a graceful tribute to the smart correctness of Se-Ling hosiery . . . Whether it be Park Avenue, Aiken, Pinehurst, Newport, or wherever women of fashion gather, there you will find preference for Se-Ling finer hosiery . . . French Jacquard tops, tiny almost invisible seams, and the exquisite fabric of Se-Ling have set an entirely new standard of fashion in silk hosiery
French in design ▼ American in durability
'SE-LING hosiery has been selected by Warner Brothers for the exclusive use of their stars in all First National, Vitaphone, and Warner Brothers Productions.
Aristocratic
WALTER FRED HOSIERY MILLS, INC. NASHVILLE, TENNESSEE

Se-Ling Advertisement from recent issue of "Vogue"

THE price slashing mania inevitably threatens the quality standards of merchandise in any field. The average consumer, influenced by the ballyhoo of "bargain" sales, looks only at the price tag. The retail merchant, striving to attain volume at any cost, thinks that he *must* price his wares actually or apparently below those of his competitor. This vicious cycle, just as evident in hosiery as in any other line, has been felt by every hosiery manufacturer. This tendency toward debasement of quality in textiles has been discussed several times in these columns.

Conditions of the last three years have attracted attention to many manufacturing concerns that have hurdled the difficulties of price warfare by catering to an exclusive market in which quality is recognized.

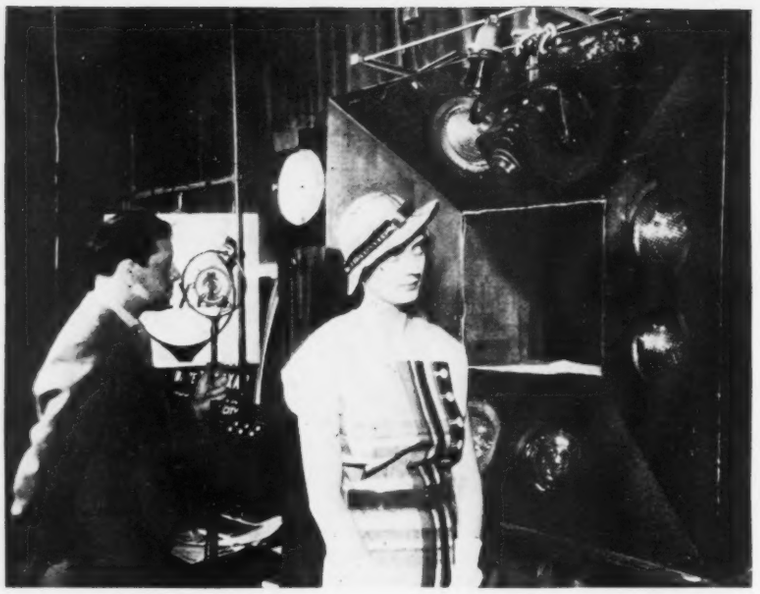
Every manufacturer could not follow this policy with the same degree of success, it is true, as the quality markets for all kinds of merchandise are limited. The story of the rapid progress made by "Se-Ling" hosiery since its introduction three years ago, as told by T. Walter Fred, president of the Walter Fred Hosiery Mills, Inc., Nashville, Tenn., presents an interesting account of what one manufacturer has accomplished in the merchandising of a quality product.

"We have talked quality, rather than price, and have tried to live up to our quality story by producing more beautiful hosiery," Mr. Fred pointed out, in replying to questions asked by the southern editor of TEXTILE WORLD. "As you know, we sell to the larger retail stores and 95% of our production is shipped in "Se-Ling" packing. We are making our plans for profitable operations based on conditions as they exist now, not based on better times, and we are operating 100% full time, day and night. We do not sell any hosiery that retails below $1."

Walter Fred Hosiery Mills, taking a leaf out of the note-book of older established mills, adopted a merchandising program designed to keep "Se-Ling" hosiery out of price competition. Many well known names in the hosiery field have lost much of their consumer preference in recent years, either as a result of price cutting on the brand, or through failure to modernize the product and the equipment. In line with the trend toward finer gage hosiery, Walter Fred Hosiery Mills have constantly been installing finer gage machines, and are now adding six new 51-gage machines with the latest attachments. High speed Leiberknecht machines are used.

Walter Fred, in a recent sales bulletin, listed the following innovations in full-fashioned hosiery that were first introduced in the "Se-Ling" line: the tiny French seam, the jacquard design in the subwelt, a new type of toe ("Peep-Toe") for sandal shoes, and double seamed heels to prevent ripped seams. In packing "Se-Ling" hosiery, the manufacturer introduced a new method of arranging the tops all at one end of the box, making it possible for the retailer to mark the hose without removing from the original package. The company always has ten colors in a line and the shades for fall are known as "Forest" colors.

Artistic advertising has been placed in *Vogue* and in other media reaching the consumers of quality merchandise. Every effort is made to assist the retail store to display "Se-Ling" hosiery to the best advantage and to instruct the sales girls in the selling points of that line. A study of the problems encountered in the hosiery departments of representative retail stores, conducted under personal direction of Mr. Fred, revealed the following troubles: (1) too many lines of hosiery; (2) too small mark-up; (3) too many mark-downs; (4) sales girls not as thoroughly trained as they should be; (5) too many unprofitable sales; (6) not enough emphasis on quality and value; and (7) failure to tie-up with progressive sources of supply.



Television

LAST WORD IN TEXTILE PROMOTION

TEXTILE promotion by television, newest development of radio science, made its debut during the March to June period, and the results have been such as to warrant an early study of this advertising medium by far-sighted merchandisers. Conceding that television still has a long way to go before it attains the present perfection of sound broadcasting, it has progressed a good deal further than most textile manufacturers realize.

Let us give a thumb-nail portrait of its growth in recent months. Mrs. Virginia Chandler Hall, noted style authority, became the world's first television fashion editor, when she began, early in March, a weekly series of sight-and-sound fashion programs, delivered over Television Station W2XAB, of the Columbia Broadcasting System. She had much difficulty in winning support of textile manufacturers, because of their skepticism of the new medium. However, persistent propaganda work brought encouraging results, and several leading organizations gave her cooperation. Her television programs showed a wide range of newest apparel, contributed by both fabric and garment manufacturers. Among the chief textile organizations cooperating were: Duplan Silk Co., the Durene Association of America, the American Felt Co., and The Cotton-Textile Institute. Her programs featured dresses, suits, accessories, millinery and footwear, posed by Mme. Jacques Maisch, wife of the French textile designer. As no survey of television reception coverage has yet been made, the number of the audience reached by these style shows cannot be ascertained. Columbia officials estimate that there are 10,000 privately-owned reception machines in New York and vicinity, and 50,000 in the United States. As three persons can view a television reception at once, this would raise the spectator total to a possible 150,000. Mrs. Hall's fashion programs were seen and heard clearly within 50 miles of New York; beyond that range, the Columbia service relayed the programs to many of the 32 television stations now operating in this country.

The first benefit of the television promotion was in widespread newspaper publicity, which included extensive layouts in 150 leading newspapers of all major cities highlighting the textiles shown; over 100 releases were sent out and eagerly utilized by the press. Newspaper interest in this novel promotion was so acute that several representative papers issued special television fashion sections. Since television does not yet have legal status as an advertising medium, firm names cannot be used in promotion, but names of associations and brand names of merchandise are permitted.

What can television offer the textile manufacturer in the way of promoting his product? The answer is that a comparatively small but rapidly growing audience is ready and keen for his sales message; the fact that television is still in the development stage gives it a novelty value not to be ignored. Mrs. Hall gave the writer some interesting facts regarding the fabric selection problems that faced her in her pioneer work before the televisor, and these are well worth the attention of the industry. Textiles of rough surfaces, Mrs. Hall explained, come out with the most satisfactory clearness in television reception, especially when there is a color contrast. The equipment does not register colors, except by implication in shading; black and white is best.

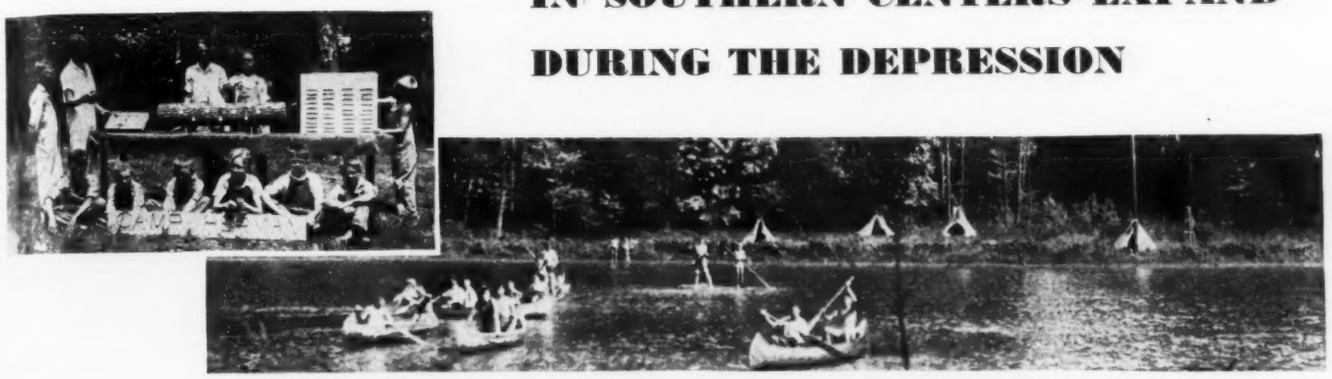
"I found color a problem," Mrs. Hall continued, "but now when I select my colors carefully, and test the shade beforehand, I can get good results. The success of weave detail depends on depth of color contrast in yarns and color shading in designs."

Any fabric design, print or weave, comes out pleasingly in television. The depth of a color is only of secondary importance, provided the contrast is vivid enough. Editorial ingenuity, Mrs. Hall found, was all that was needed to solve the color problem, since it was mainly a matter of fabric selection. The accompanying photograph shows Mme. Maisch posing for television.

"I have proved it can be done," Mrs. Hall said, "the rest is up to the textile industry. Textile firms use all types of stunt publicity today, yet they hesitate about supporting television in a legitimate fashion promotion program. Personally, I am convinced television is an actuality and we must accept it. Once business improves, it will leap up overnight. I can see the day coming when a woman will read an advertisement, and then telephone the store to show her by television the dress that appeared in the ad."

Village Activities

IN SOUTHERN CENTERS EXPAND DURING THE DEPRESSION



Nature study class and Indian pageant at Camp Herman of the Cone mills

IN the South, where the majority of cotton mills maintain villages for their workers, manufacturers have been confronted during the depression with the difficult problem of providing for their employees. Not only have wage reductions complicated the situation in most cases, but part-time operating schedules and complete shut-downs, made absolutely necessary by market conditions, disturbed village life and placed many families in financial distress. That widespread suffering, except in rare instances, has been avoided in the mill villages is a tribute to the foresight and leadership of southern cotton manufacturers.

In the early spring, in view of the uncertain outlook for providing steady employment to their operatives, mill executives urged all families in their villages to plant vegetable gardens. Local farm demonstration agents cooperated with mill officials in starting these garden projects, several of which were in the nature of community enterprises, while in most cases the mills provided teams for plowing and furnished seed.

Scores of modern canning outfits have been purchased by southern mills this summer and installed in their villages. Some of these have been portable outfits that could be moved from one village to another. Approximately 100 quarts of fruits and vegetables were canned each day in the Chadwick-Hoskins villages at Charlotte, N. C. At the Orr Cotton Mills, Anderson, S. C., where some 40 acres were planted in gardens, the canning outfit has been working overtime. Likewise, in the same city, prior to Aug. 1, about 2,000 quarts of vegetables had been canned in villages of Gossett Mills.

These garden and canning projects have developed a new spirit of cooperation between the mill and the workers. These activities do not cause the employee or his family to regard themselves as objects of charity, but rather to understand that the management is merely aiding the workers to help themselves. In exceptional cases mill families received cash allowances during periods of complete shut-downs. At Dunean Mills this allowance amounted to $2.50 per week for each family, but was extended only with the provision that keys to the family automobile would be deposited at the mill as proof that money would not be spent for gasoline rather than for food and other necessities.

Loan sharks have operated in many southern mill villages during the depression. Conditions became so troublesome at several plants that it was necessary for the management to issue warnings against borrowing money from such sources.

In addressing a group of workers at the Lindale (Ga.) plant of the Pepperell Mfg. Co., Capt. H. P. Meikleham, agent for the mills, explained the management's position as follows: "We aim to stop using the mill office and clerical force as a collecting agency for everything about Lindale. Hereafter, the only items they will take out of your pay at the mill office, will be for company business only—rent, coal and wood. However, this doesn't mean that when some of our people have a misfortune, sickness or something happens that could not be avoided, we will not stand by them, lend them money, pay their hospital bill, or do anything else within reason."

Despite the unprofitable state of affairs in the cotton textile industry, a surprisingly large number of mills have not curtailed the scope of their community activities, and during the depression increasing emphasis has been placed upon social and recreational projects for young people.

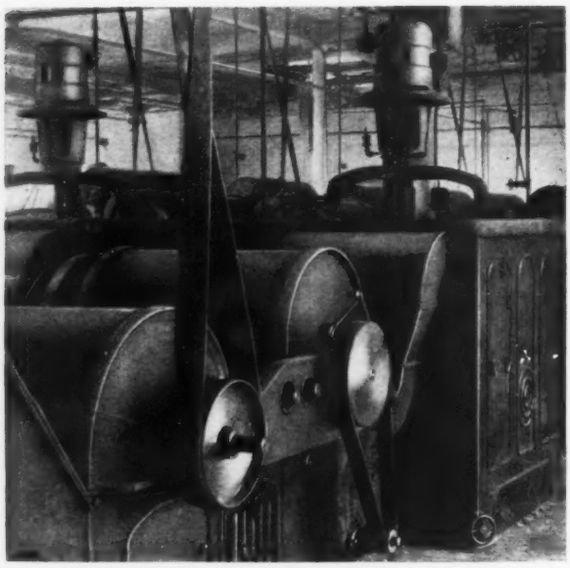
Several mills in the upper Piedmont section of the Carolinas and Georgia maintain summer camps in the mountains for boys and girls of their villages. These camps are well kept and are supervised by competent men and women with training in young people's work. At Camp Herman, where boys and girls of the Cone group of mills, Greensboro, N. C., are afforded opportunity for study and exercise in the open, rates are based upon a sliding scale which takes into consideration whether or not the parent or guardian of the child is employed on full time.

Week-end camping periods for families and for employed boys are likewise provided at the camp, which is nine miles from Greensboro, at certain times during the summer months. Camp Herman was opened for the first campers in 1928 when 168 boys, girls and members of their families attended camp. Enrollment has grown every year since that time with 383 in attendance during 1931. This summer 213 boys and 144 girls have already registered and the late summer sessions are still in progress.

Cotton Yarn Defects

A TROUBLE REVIEW SURVEYING SOME CAUSES

By Albert D. Barnard



Foundation for good yarns is in efficient opening and picking

◆ *Tied down, as most of us are, to the details which immediately confront us, we seldom get an opportunity to study the whole scheme of our work as a unit, note how one thing is related to another, and seek to trace all causes or results to their ultimate source or conclusion. Too often also we are unsuccessful in finding time to investigate and eradicate what appear at first to be minor imperfections but which may, if unheeded, develop into seriously objectionable defects. The accompanying review by a cotton-mill superintendent may serve to remind some spinners of a few things they are now overlooking and may put them on their guard against difficulties now developing.*

WITH good-quality warp and filling, modern automatic looms should operate at near 100% efficiency, or run about 9.9 hours out of every 10-hour period. Obviously, it is important that every possible step be taken to eliminate defects in the yarns. There are two kinds of defects—namely, those that retard production and those that injure quality, either in durability or appearance. A piece of goods for example can be loaded with heavy ends that do not affect the wearing qualities but which spoil the appearance.

Opening and Picking

In my opinion, based on years of observation, the foundation for good warp and filling yarns lies in the proper preparation of the stock in the opening and picking rooms, and here the superintendent who desires to check over his mill for the detecting of any discrepancies which may exist must properly begin his investigation. A good many mills have shown that they realize the importance of these departments by recently replacing their old equipment with new and more modern machinery. A critical study of opening and picking is particularly necessary when the mill desires to employ a lower grade of cotton than that previously used. Much grief has resulted from failure to observe this fact.

Modern equipment requires to be operated carefully if all the benefits expected from it are to be realized. Imperfections in the lap coming from the picker room are likely to be carried through the mill into the finished cloth. The primary qualifications for a good lap are of course cleanliness, even weight per yard, and a content of cotton suitable for the goods that are to be made. Having these qualifications, the chances are that the lap will be satisfactory in other respects. But these specifications are not met when the stock is improperly mixed or is too dry or too wet; when the machines are not fed regularly; when the fan draft is defective, resulting in heavy and light spots; when the distribution of the air through the screens is not uniform, resulting in the same difficulties; when the operation of the evener is defective; and when the operatives are incompetent.

Present requirements in methods for mixing and blending cotton were adequately discussed in this journal recently by Mr. Landau. One of the best articles I have ever seen on the theory and principles governing machinery layouts in the opening room was that by Thomas Hagan, of the Textile Development Co., in TEXTILE WORLD, May 5, 1928. He showed how different cottons should and could be handled separately in the early processes and later blended efficiently without interruption to the continuous flow of the stock.

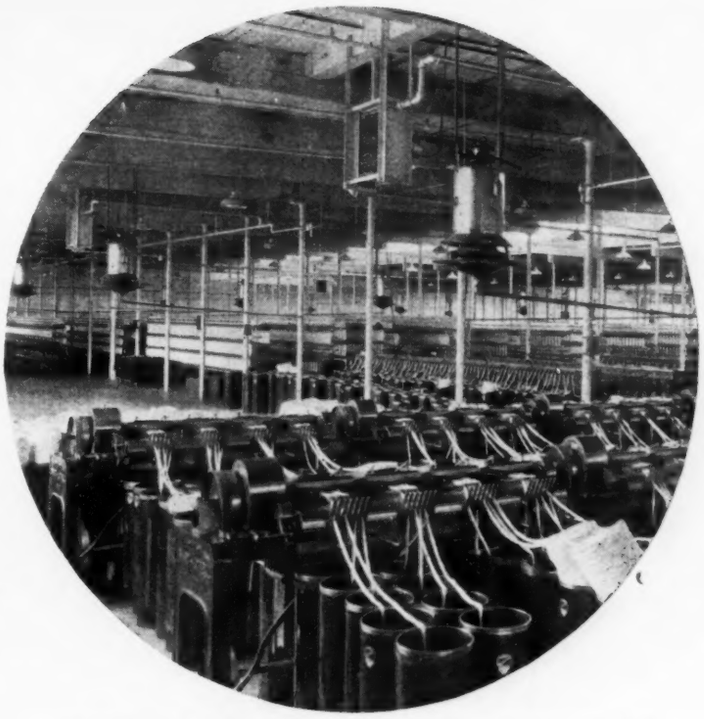
Carding and Drawing

Although the chief cause for bad work at the cards is the crowding of too much cotton through them, this problem would not be quite so serious if the cards were looked after carefully and kept in first-class operating condition—but such care requires time and money. It is of little use to sharpen and tighten the clothing, for example, if the bearings are worn and out of level. Neps are a danger signal and indicate one of two things—production is being crowded or the cards are being neglected. Card tenders should be educated to the fact that any irregularities for which they may be responsible will go all the way through to the looms, giving the weaver plenty of trouble with light and heavy ends and, in the case of skimpy sliver, with weak places.

The more salient causes for trouble at the drawing frames include dirty or defective rolls, stretching of the sliver between front and calender rolls, and singles and doubles resulting from inaccurate insertion of cans or careless piecing-up.

It is my opinion that 75% of the seconds which may come from the mill's weave room may be charged to

carelessness of some sort in the operation of the roving machines. A fault which adds greatly to the work of the speeder tenders, and which invites carelessness in the performance of their duties, is excessive tension. This stretches the roving, often unevenly, and results in a weak yarn which is sure to break somewhere between the spinning room and the cloth room—most likely in the weave room. Even one doff of roving made under excessive tension may give trouble in a great many warps or in a good many bobbins of filling, unless the yarn is detected and put back into waste before it reaches the weave room. More likely than not, however, the spinning department will run it through by using light travelers, a little extra twist, and a whole lot of extra effort. Extra-heavy hard-twisted ends, resulting from carelessness of the speeder tenders in making doublings at the creel or in piecing-up (followed by failure to pull the imperfect roving off the bobbin), are likely to go through the spinning rolls, which are light, without being drawn out to any degree whatever. The strong yarn resulting, if it gets through the spooler guides, will receive a good bath of starch, after which it will be seen no more until it tears out a dozen warp threads, ruins a cut of cloth and is taken out by the weaver or pulled out of the goods at the cloth tables. And besides these troubles, we have those due to dirty, sluggish, or imperfect roving rolls or to rolls set wrong for the staple of the cotton.



Carelessness in drawing can be traced through weaving

Rewinding Filling

Mills which have adopted the system of rewinding their filling, either from cops or spinning bobbins, have taken a long step toward eliminating loom stops caused by defective filling. In this extra process, with careful operatives, yarn defects coming from spinning and the preceding processes can be discovered and extracted from the work, thereby reducing the percentage of seconds and the number of loom stops. Aside from the factors of greater loom production and decreased seconds, the amount saved by reducing waste from bad filling bobbins and sloughing-off (so common with frame-wound filling) will go far toward offsetting the extra cost of rewinding. In addition, if the filling is rewound in a room where proper relative humidity is maintained, there is little need for reconditioning as a precaution against kinks and sloughing-off of bobbins.

High-speed warpers beaming from cones instead of spools have greatly reduced the number of kinks which cause so much trouble in weaving, but not entirely. Losses in weaving production are caused by crossed ends in warping and by bunches of thread waste wrapped up in section beams. Winder or spooler hands should be careful not to use automatic knotters which have dull blades or which are otherwise not in good condition. In addition to having the yarn cleaners set to take out all slubs and gouts and employing sufficient tension to break all soft spots, it is desirable to have winder or spooler help who take pride in making good work for the machines which follow.

Preparing the Size

Starch that is partly cooked will not penetrate the yarn readily. Besides that, it is liable to mildew if held too long and thus spoil a good portion of the goods. The main point in making size is to be certain that all ingredients are mixed thoroughly and maintained in this condition by constant agitation. In the author's opinion, compounds, tallows, or gums should never be added to the starch until it is thoroughly cooked, as these compounds tend to form a coating around the starch granules and thus interfere with the cooking process. Also, some of the ingredients of compounds are volatile and will vaporize with the steam. I have tried all the cure-all formulas and methods for keeping down shedding and have come to the conclusion that starch cannot be cooked properly if mixed with anything that is capable of forming a coating around it, because the coating prevents bursting of all the granules even under prolonged cooking.

Left-over size, particularly if it has stood in the vats from Saturday to Monday, presents a serious risk if used. Unless the preservatives are extra good, no amount of doctoring will make it fit for use, and the warps run through it will in all probability give trouble from start to finish. In fact I have seen some of them cut off and sold for waste. Building left-over size back to original strength is a difficult and uncertain practice.

Warps should be dried just enough to keep them from mildewing, but not baked to such an extent that they will reach the looms in nearly a bone-dry condition, as this is the cause of much trouble in the weave room. Fine work should never be rushed through a slasher; and the steam pressure in the cylinders should be just enough to dry the thread to normal conditions—about 6.5 to 8.0%, depending to some extent upon the construction of goods being woven. A good average speed in slashing numbers ranging from 30s to finer is, in the author's opinion, from 20 to 30 yd. per minute. Coarser numbers, or warps containing a small number of ends, may be slashed at somewhat higher speeds.

The percentage of size necessary for good weaving, if the mixture has been well cooked and properly applied, can be very small. Usually satisfactory results can be obtained from using 4 to 6% of the weight of the goods, or 8 to 12% added to the warp.

Wool-Oiling Tests

EMULSIONS FOUND SUPERIOR TO "DRY" OILS FOR WOOLEN

By J. B. Speakman and H. Franks

Department of Textile Industries
Leeds University, England

◆ *Believing verification to be needed for certain advantages claimed in recent years for the lubrication of wool with emulsions of oil in water, as against ordinary "dry" oils alone, the above investigators have conducted a set of interesting experiments. The following is a digest of their report, published in the "Journal of the Textile Institute."*

THE most successful results in yarn manufacture are obtained when the oil is uniformly distributed over the surface of the wool. This object is difficult of attainment because the surface exposed by the wool is enormous for its weight, and only limited amounts of oil are used. A particular instance may serve to emphasize the difficulty: the external surface area of one pound of 64s merino wool is of the order of 80 sq.yd., and if this is to be oiled with, say, 12.5% of oil, 2 oz. of oil has to be distributed over this enormous area. In order to insure that all fibers are oiled to some extent at least, the woolen industry is therefore compelled to use far greater amounts of oil than necessary if uniform distribution were easily attainable.

In some cases, difficulties of this kind are overcome by applying oil from a watering can to successive layers of wool, the resulting stack of material being allowed to stand, with frequent disturbance, for a considerable time before carding is attempted. Under such conditions, uniform distribution of oil is realized by its natural tendency to spread. It must not, however, be assumed that where such a method is practicable, emulsions of oil in water—wool creams—can serve no useful purpose.

It is claimed that if the oil is emulsified with an equal quantity of water, the total bulk of liquid is increased without significant increase in cost, and the likelihood of uniform distribution of oil is correspondingly increased. Indeed, where oil emulsions are used, the improvement in the distribution of oil may be so great, it is claimed, as to allow the actual amount of oil employed to be reduced below that normally possible when ordinary oils are used. Numerous other claims have been made in favor of wool creams, including assertions to the effect that their use gives a stronger

Table I—Strength

Oil	Mean Breaking Load of Yarn (oz.)	Average Variation in Yarn Strength (1)	Average Variation in Yarn Strength (2)
Oleine. 15%	27.3	8.7%	13.8%
Oleine Cream. 30%	30.1	8.5%	10.6%
Olive oil. 15%	19.5	10.2%	12.8%
Olive oil cream. 30%	23.8	9.3%	10.9%
Olive oil cream. 22%	26.0	9.2%	11.1%
Olive oil. 15%	19.8	9.5%	12.5%

1. Based on mean strength of each cop tested. 2. Based on mean strength of each type of yarn.

Table II—Twist

Oil	Average Twist (turns per inch)	Average Variation in Twist %
Oleine. 15%	7.12	8.62
Oleine cream. 30%	7.29	9.31
Olive oil. 15%	9.22	9.48
Olive oil cream. 30%	9.48	9.58
Olive oil cream. 22%	9.33	8.12
Olive oil. 15%	9.52	10.4

Table III—Count

Oil	Average Count (Y.S.)	Average Variation in Count %
Oleine. 15%	12.6	8.1
Oleine Cream. 30%	12.2	8.1
Olive oil. 15%	12.1	8.0
Olive oil cream. 30%	11.6	8.1
Olive oil cream. 22%	11.0	7.5
Olive oil. 15%	12.0	8.2

Table IV—Corrected Strength

Oil	Corrected Strength (oz.)
Olive oil. 15%	20.5
Olive oil cream. 30%	24.0
Olive oil cream. 22%	24.9
Olive oil. 15%	20.7

yarn, more uniform in count and twist than is possible with ordinary oils. The purpose of our investigation was to examine the validity of these claims.

Two series of experiments were carried out. In the first, a 99/100% oleine was compared with an oleine emulsion on a 56s New Zealand Corriedale wool. Although positive results were realized from the tests carried out on the resulting yarn, the work must be regarded as being simply preliminary to the second series of experiments, because the Corriedale wool used was too long in the staple for ideal working on the woolen card available. The second set of experiments was carried out on a 56s Down wool, olive oil being compared with olive-oil emulsions. It should perhaps be stated that olive oil was chosen for use, not because it normally finds application to woolens, which is far from being the case, but simply in order to obtain results for wool creams made from neutral oils as well as from oleine. Should both types of cream give the same general results, they can then be regarded as true for all kinds of oil.

Carded Immediately

It was clear from the outset that any difference between wool oils and wool creams would best be realized by carding immediately after oiling. If any considerable period should elapse between oiling and carding, the superior uniformity of oiling brought about in the case of wool creams by virtue of the greater bulk of liquid used would be masked by the tendency of the oil to spread in the case of the material oiled with oil alone. Similarly the test would be invalidated by evaporation of water from the wool cream blend during the period of storage, since this water may have an important part to play in the subsequent behavior of the wool. For both these reasons, the experiments to be described were carried out as rapidly as possible, carding being commenced immediately after the application of oil. In all cases, the oil or emulsion was applied by hand to the scoured wool before the latter was fed to the carding machine, every endeavor being made to realize uniform oiling.

The yarn spun in each case was 11s Yorkshire skein [equivalent to 1.76-run—the Yorkshire skein being based upon a length of 256 yd. in 1 lb. of No. 1 yarn]. In the case of the oleine experiments the twist amounted to seven turns per inch; in the olive-oil experiments, to nine turns. The wool cream in each case consisted of equal parts of oil and water with a small amount of ammonia. The composition of the oleine was as follows: free fatty acids, 28%; glycerides, 52%; unsaponifiable matter, 20%. The percentages in the accompanying tables indicate the weight of oil or cream as compared to the weight of wool, and the order in which the results of the tests are listed indicates the order in which the various lots of wool were carded and spun.

There can be no doubt that the strength results, shown in Table I, serve to substantiate two of the claims made in favor of wool creams for use on woolens. Both with oleine and olive oil, the use of an emulsion gives a far stronger yarn than the corresponding "dry" oil. The increase in strength with oleine emulsions is not so well marked as with olive oil emulsions; but, as previously pointed out, this is probably due to the unsuitability of the wool for the carding machine available. The results for olive oil are particularly interesting. In the first place, the mean strengths of the two lots of yarn produced with olive oil agree remarkably closely in spite of the fact that they were separated in their working by two lots of wool oiled with emulsions of olive oil. Secondly, the increase in strength produced by using 22% of the wool cream is greater than with 30%, and both increases are remarkably high. In regard to variations in yarn strength, it is apparent that the variation is in all cases less for wool creams than for the corresponding oils. Although real, the difference is not unusually great, and it appears to be insufficient to account for the great increase in yarn strength given by wool creams.

No discrimination can be made between wool oils and wool creams in respect to uniformity of twist, except perhaps in the case of the yarn oiled with 22% of olive-oil cream, which is definitely the best of the series (see Table II).

Within the limits of experimental error, all the yarns appear to be equally uniform in count (see Table III) except perhaps the yarn oiled with 22% of olive-oil cream, which is again the best of the series. A surprising feature of the results is that the yarns produced with wool creams are in all cases lower in count than the yarns oiled with the corresponding oils. This may be due to a greater concentration of wool on the card when creams are used, as the result of more efficient lubrication and the removal of a greater amount of crimp. In the case of olive oil, these differences in count are too great to be ignored when comparing the strengths of the several yarns. The observed strengths have therefore been reduced to a standard count of 11.5 (Y.S. woolen) on the assumption that the strength is in each case inversely proportional to the observed count. Values for the corrected strengths of the various yarns are given in Table IV.

Reason Lies in Fiber Breakage

It was found that the wool lubricated with 15% of olive oil contains the greatest number of short fibers, while that oiled with 22% of olive-oil cream contains relatively few short fibers and the greatest proportion of long ones. These values are in precisely the same order as those for yarn strength given previously, and the marked superiority of wool creams must be referred definitely to reduced fiber breakage. Of particular interest in this connection is the fact that breakage is less in the case of wool oiled with 22% of olive-oil cream than with 30%, although the amount of oil used is greater in the latter instance. The improved distribution of oil given by using 30% of the cream must be counterbalanced by the effect of the large amount of added water in weakening the fibers.

Straight-Wire Clothing...

CARD SETTING AND GRINDING

By C. A. Dickens

Roanoke Rapids, N. C.

◆ *Many cotton carders have been skeptical regarding the feasibility of adopting straight-wire clothing. Mr. Dickens has found that success with the new covering depends upon proper grinding and setting. In this article he describes the procedure he has followed and the results he has attained.*

THERE has been a great amount of discussion during the last year or so about straight-wire card clothing. I have two cards clothed with this material, and they have been running now for three years. When they were first clothed, I ground them with a drum grinder roll for two days and then put on a traverse grinder roll and ground them for two more days. I set the grinder rolls so there would be just a light buzzing sound of the emery against the wire.

Second Grinding

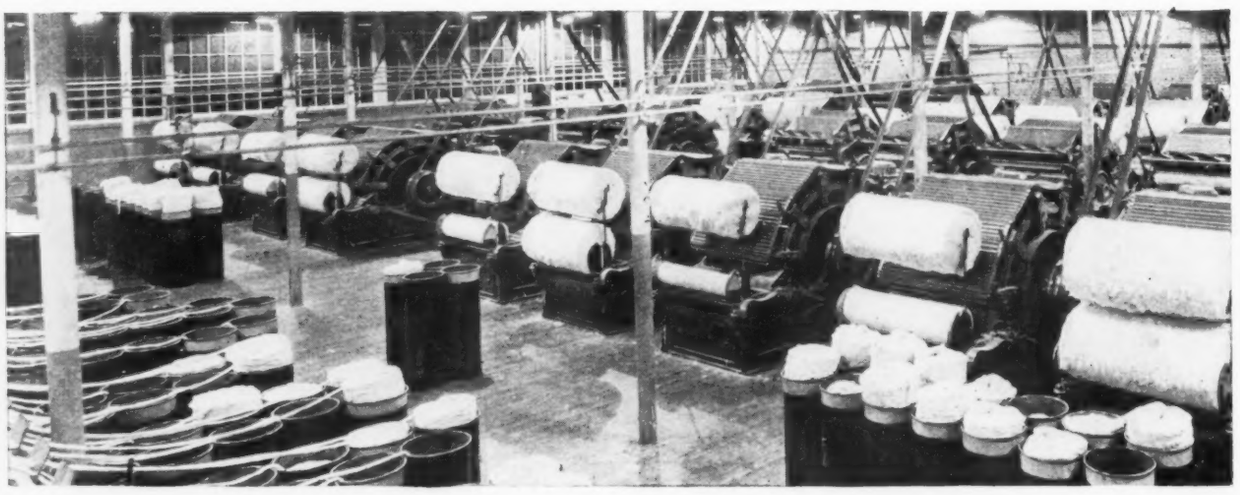
I set the grinder rolls down a little closer at three-hour intervals after grinding as mentioned above, set the card up, and started cotton through. The cards made fair work for about three or four weeks. At this point the web as it was delivered by the doffer began to look full of neps. I stopped the cotton from going through the card, dusted out the cylinder and doffer, and repeated the same grinding as before. At end of this second grinding I gave the card the following settings: doffer to cylinder, 5/1000; and doffer comb to doffer, 17/1000. For the flats I use a progressive setting. Beginning at the back setting block next to the back of the card, I set this point to 10/1000 loose. Then every setting block from this point to the front of the card I set just a little closer. As a result, the front block is setting 10/1000 tight; and the licker-in to cylinder, 7/1000 tight. The licker-in screen is set to the licker-in according to the amount of fly it is desirable to take out. The cylinder screen is set to the cylinder at the licker-in end of the card 10/1000. The next setting point is 34/1000; bottom, 34/1000; doffer end of card, $\frac{1}{4}$ in. Both the mote knives are set just as close to the licker-in as possible without having them rub.

Three more settings are made as follows: the feed plate to licker-in, 10/1000 tight; the back knife plate, top edge to cylinder, 15/1000; and bottom edge to cylinder, 22/1000. Giving the back knife plate this setting will keep the flats from loading up with cotton. The front knife plate is set to the cylinder 34/1000. The stripping plate is set to the amount of stripping it is desirable to take out. The flat stripping comb is placed just close enough to keep the flats clean at all times.

Grinds at Six Month Intervals

The card has made good, clean work ever since this second grinding period. Now I grind these two cards every six months for two days with a traverse grinder roll, ten hours each day, making twenty hours for each grinding period. I give these two cards the same settings as I described above after each grinding and strip the cards once each week, running daytime only.

The result is that I am getting good, clean carding. These cards give me a little larger production as I do not have to stop so often to strip and I am obtaining a cleaner web from the doffer than ordinarily. I believe that any mill which will grind and set its cards as I am doing will have excellent results and will find that the work runs well on the subsequent processes.

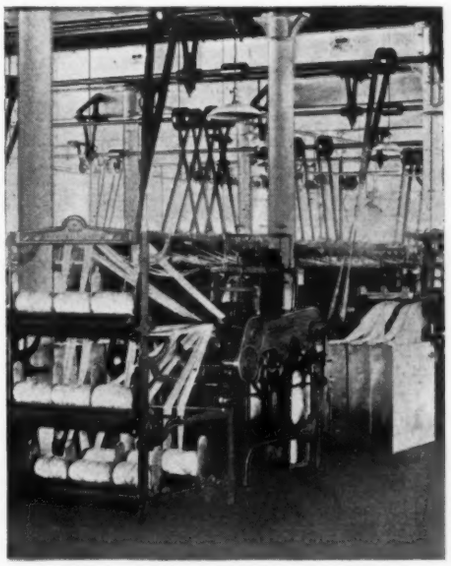


Success with straight wire depends on proper grinding and setting

Worsted Sliver Guides

OF REAL VALUE IN GILLING

By Webster Norris



Absence of sliver guides renders adequate blending of stocks difficult

WE WERE making rovings for bunting yarns from tops which were purchased from three sources and blended in the first gill box. Six ends were arranged up either side of a double-head can gill box, tops from all three firms being blended together and a draft of seven being applied. The resulting sliver was a bad one. Ratch, draft, and speeds were all re-examined, but found suitable for the wool in hand. The front rollers and leathers were next scrutinized and passed as efficient. The tops were again analyzed; and, although the different lots approximated each other in length and fiber diameter, they were not alike in pulling power, revealing in that phase, and in their "lay," that one quality was new combed while the other two lots had probably been in stock for some weeks or months.

The bad sliver previously referred to was here and there apparently badly drafted, showing clusters of fibers instead of a clear and regular sliver. To accommodate what appeared to be too much ratch, the distance between the back and front rollers was diminished 1 in. The resulting sliver was no better; on the contrary, there were signs that the ratch was now too close. Therefore the former open condition was reverted to. The drawing-off rollers and leathers had been doing good work and there had been no complaints, but under the circumstances it was considered advisable to replace them with new ones. A fresh start was made; but the result, although improved, was not good, nor was it possible to continue running. We applied a small quantity of lubricating oil without benefit.

The machine was then run for a time in the belief that the only way the trouble could be located and remedied was by running and watching the machine very carefully. It was soon discovered by this means that only certain of the slivers were affecting the spoiled places seen at the front of the box. Attention was focused on these ends; and it was then found that in certain positions these slivers drafted perfectly, making good work at the front of the machine, while in other positions they produced badly drafted ends. The slivers so affected were the newly combed, and it was by reason of their drafting too freely that cloudy and irregular slivers were being made. When these ends were placed under other top slivers, they were controlled and kept in position while under draft.

We had not experienced this trouble before, and our gill boxes were fitted with only two guide fingers, set to keep the slivers running within the faller set-over. The tops were mounted in an ordinary revolving creel with corrugated rollers; and, since the tops were cross-wound, the position of the top slivers at the back rollers varied with every revolution made. The tops were rearranged in the creel to obtain better positions in the fallers. Again a slight improvement resulted, but not what was wholly desired. There was no stability in the position of the tops as they entered the fallers. We therefore ordered a guide plate with separate holes for each sliver. This plate, mounted on the gill box behind the fallers, gave constancy of position to slivers which, experiment showed, required it. The problem was settled when guide plate was fixed.

These plates are used commonly only when differently colored tops are being mixed. For special work, and where a maximum of blending is desired with a minimum of doublings and operations, their use is particularly valuable. They are always employed when making grays and other shades where the colors used are contrasted in character or brightness. Consider, for example, a medium gray, with three black and three white ends up at each side of the box. Without effective sliver guides, the three black or the three white may pass through the gill box contiguously, losing to a great extent the blending power of the process. With individual sliver guides, the ends are arranged to run parallel with each other—black, white, black, white, etc.—making the doubling one of full value for color blending.

While pointing out the efficiency of these guides, we record that they are placed on drawing gill boxes by machine makers only when specially asked for.

A little advice is tendered to those who may consider the adoption of these guide plates. There is a tendency for the slivers, if running close together, to become meshed with each other and finally to join together and pass through the same guide hole in the plate. To avoid this, keep the slivers separate when passing from the creel to the guide plate. Horizontal rods placed in suitable positions on the creels are good for this purpose. One device, used on silk boxes, has a corrugated plate arranged for the slivers, which pass up the grooves, while the crowns keep the slivers apart. Another arrangement consists of a pair of wood rollers mounted behind the box and in front of the guide plate. These are loosely mounted and revolve freely by frictional contact with the top slivers passing between them.

A properly arranged feed in the first process will be equal to another operation in the drawing, considered from the blending standpoint.

Filling Back, Warp Face

CORRECT AND DEFECTIVE STITCHING FOR PIECE-DYE COATING

By R. A. C. Scott

◆ *In our June issue Mr. Scott illustrated and described various methods of distributing the binders or stitchers through the weave in designing both filling-backed and warp-backed fabrics and offered several examples of filling-backed design. In the August issue he discussed correct and defective stitching for filling-backed twill and basket weaves. In this, the third article of his series on backed, double, and treble cloths, he concludes his discussion of filling backing with some notes on warp-faced weaves backed with filling and some helpful instructions for selecting and distributing ties for face weaves. The next article, to appear in an early issue, will take up warp-backed cloths.*

THE chief cloths to which warp-faced weaves backed with filling are suitable are in the piece-dye coating class of fabric. The outstanding feature of this class of material is its worsted or cotton face with woolen back, the latter being subjected to filling and napping processes in finishing, thereby providing a soft and full-handling cloth.

In Figs. 24 and 25, given in the group below, which are the four-thread warp twill backed with the eight-thread sateen and the four-thread warp sateen or broken crow backed with an eight-thread irregular loose weave, and in fact in all these warp-faced types of weaves, it will be noticed that only partially covered ties are possible—also that the back weave is looser than the face weave. Again, as previously pointed out, stitches which are covered on only one side should always precede the covering pick, so that in Fig. 24 the ties indicated by crosses are correct, whereas those indicated by circles illustrate incorrect stitching.

A suitable cloth construction for Fig. 25 would be: warp, 2/40s worsted, 80 ends per inch; face filling, 2/50s worsted; and backing filling, 1½-run woolen, 72 picks per inch. For reasons of economy a cheaper version may be had by substituting 2/34s cotton for 2/50s worsted face filling.

Before leaving this subject of filling-backed cloths, it would be well to touch briefly on the method generally adopted in selecting and distributing ties for face weaves. Ties for regularly formed weaves such as simple twills, etc., are, as a rule, easily arranged; but those of irregular construction very often provide difficulty in proper arrangement and distribution. A convenient method of working is illustrated in stages at Figs 26, 27, 28, and 29.

First of all, the face weave is indicated lightly and ties between the face picks are marked where only one tying position is available, as at Fig. 26. Secondly, the ties are marked on the remaining positions, care being taken to indicate one for each backing pick and also as far as possible to place one tie on each end. In Fig. 27, therefore, seven ties are correctly placed, the only actual omission being that of the eighth backing pick.

On closer examination we find it possible to place this stitch between the sixth and seventh or the first and second face picks; but on both of these picks a tie has already been indicated. Consequently, in order to have the ties properly distributed, and as long as the back and face fillings show little color contrast, it is customary to place the stitch with a face-filling float on one side only, as illustrated at Fig. 28 and again at the complete design, Fig. 29.

Subjects of Future Articles

Following articles will deal with warp-backed cloths, imitation or pseudo-backed cloths, backed-cloths with wadding threads, double cloth in all its branches, including interchanging and cut double cloths, and finally treble cloths and methods of interchanging back and center for novelty effects.

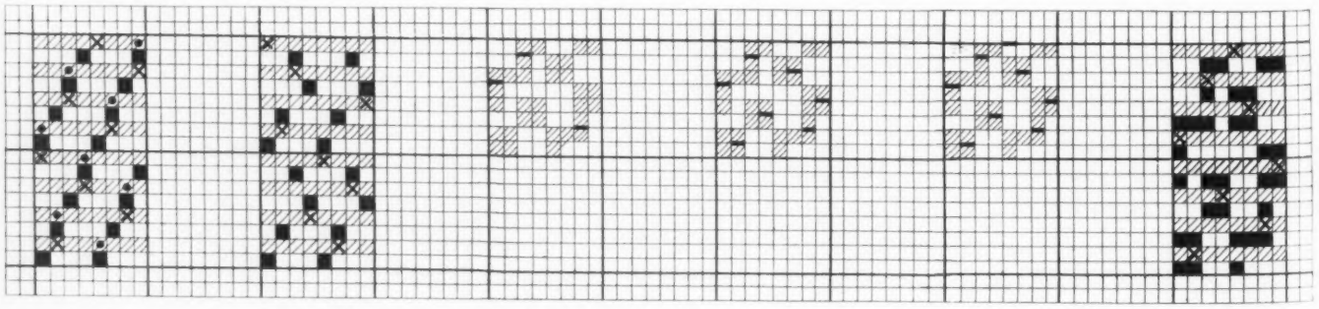
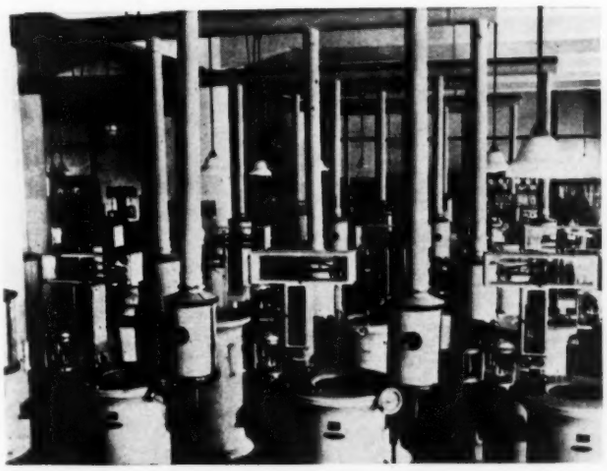


Fig. 24 *Fig. 25* *Fig. 26* *Fig. 27* *Fig. 28* *Fig. 29*

JAPAN EXPANDS FACILITIES FOR

Silk Conditioning



Electrically heated silk-condition testing ovens in the Silk Conditioning House, Kobe, Japan. Note glass-enclosed, analytical-type balances and preheating compartment in the exhaust pipe. Dr. Mullin has recently inspected the Japanese facilities and sends us the accompanying description from his tour of the Far East.

*By Chas. E. Mullin, D.Sc.**

JAPAN now has two of the most modern silk conditioning houses in the word, located at Yokohama and Kobe, both of which are owned and controlled by the Japanese government. The plant at Yokohama is the largest in the world, and the Kobe plant is said to be the second in size. At the present time both institutions are undergoing further extension and improvements.

The Yokohama Silk Conditioning House was established in 1895 to provide a plant for the inspection and testing of raw silk for both sellers and buyers, and to encourage the filatures to improve the quality of the Japanese raw silk. On July 1, 1927, a law went into effect which requires that all transactions in raw silk for export must be based upon the conditioned weight, as determined by the Yokohama Silk Conditioning House. Since Jan. 6, 1932, the Japanese government has required that all raw silk for export or sold on the Silk Exchange at Yokohama or Kobe must be both classified and tested by this institution or the Kobe plant.

Each Bale Bears Official Seal

Before this law went into effect, all testing and grading of raw silk had been conducted privately and this was frequently the cause of considerable controversy. Now each bale of raw silk must bear the unbroken seal of the testing institution to insure that the contents have been tested and classified according to the "Standard Methods for Testing and Classifying Saw Silk." It must also be accompanied by official certificates of grade and conditioned weight. These improvements have been due largely to the personal efforts of Dr. Gonshiro Haga, Director of the Yokohama Silk Conditioning House, to whom the author is indebted for permission to study this plant and information concerning its operation, methods, and equipment.

In Japan all silk is packed in bales of 100 kin (about 132.3 lb.). Each bale contains 900 skeins. For testing and sales purposes each ten bales of silk constitute a lot. For the quality test, 50 skeins are withdrawn from each lot and are inspected visually for uniformity, color, luster, hand, presence of hard gum, packing, etc. The sample skeins are given the usual mechanical tests, such as the winding, evenness, cleanness, neatness, cohesion, tenacity, elongation, average-size, and size-deviation tests.

For the conditioning test, the Yokohama plant has 150 electrically heated conditioning ovens—each with a glass-enclosed balance, preheating compartment, and two aluminum baskets. Several of these units are shown in the accompanying illustration.

In grading for cleanness, evenness, and neatness, ten boards are wound from each lot, and each board is graded by ten individuals under excellent conditions as to position, lighting, etc. For this work there are available 50 winders, 240 seriplane machines, 14 elongation and tenacity machines, and 20 cohesion testers.

Tested Skeins Returned to Seller

In making the sizing tests, 200 small skeins are wound from the 50 mechanical test skeins from the 10-bale lot. All skeins used in the mechanical and conditioning tests are put into good shape and returned to the seller of the silk, and are not charged to the buyer.

The Yokohama plant was erected in 1926, at a cost of approximately five million yen (approximately $2,500,000 at that time), with two million yen for equipment. The recent law regarding the compulsory testing and classification of all silk has necessitated the building of an annex, at a cost of about three million yen. Present capacity of the plant is about 1,500 bales a day. Prior to the enforcement of the new law, it required about 1,150 employees to handle the work, but it is expected that this will reach about 1,350 during 1932 when all of the apparatus is in full operation.

The Kobe Silk Conditioning House was originally a municipal institution, but was taken over by the Japanese government last year. A large extension has been added recently to provide for the new work.

Among other testing equipment, it has 48 conditioning ovens, 70 winders for the seriplane test, 7 double winders and 3 single winders for the breaking test, 24 winders for the sizing tests, 17 denier balances and 8 analytical balances for the sizing test, 14 inspection booths, and 5 special condition-testing ovens for use in connection with the sizing tests.

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Silk-Loom Fixes

INVOLVING THE LAY MOTION

By H. E. Wenrich

SEVERAL lay-motion fixes that will last for years are illustrated in Fig. 1. For instance, the lay is bolted to the lay sword from the bottom and the side. Also there are two short screws which run through the extension at holes *H* into the lay. When a warp is out, a fixer will make a better job of this connection by boring the two holes entirely through the lay and running two bolts through the holes in place of the screws. Drive the bolts through at the back and tighten at the front. Saw off any of the excess length of the bolt so the end will be flush with the face of the nut. Use this fix on both the plain and box sides of the loom. Lay spring *K* is adjusted at *J* with a bolt as shown at *J*1, being fastened at *I* with a small bolt. The tension is controlled by the nuts being drawn in or out on the bolt *J*1.

The lay-sword foot is fastened to the rocker shaft with a setscrew at *G*3. In some makes of loom this foot has two setscrews as a further precaution against coming loose. When the lay-sword foot is out of adjustment, we are courting one of the most serious defects possible to make—namely, regulator marks, often known as "pick-wheel marks."

When the lay is beating in the pick, the rocker shaft is turned slightly forward, allowing the pick pawl to go forward on the pick wheel; and as the lay is on the backward motion, the pick wheel is taken back as the rocker shaft is turned back for the amount of pick the pick-wheel adjustment is timed for. The defect occurs when the setscrews in the foot are loose, the shaft failing to turn with the action of the lay sword.

Looms that are equipped with pick motion other than the type which is operated from the rocker shaft, need not, of course, fear this defect when the setscrews are loose. However, by constant rubbing over the rocker shaft, the foot will wear out, or else will wear the rocker shaft at the point of contact.

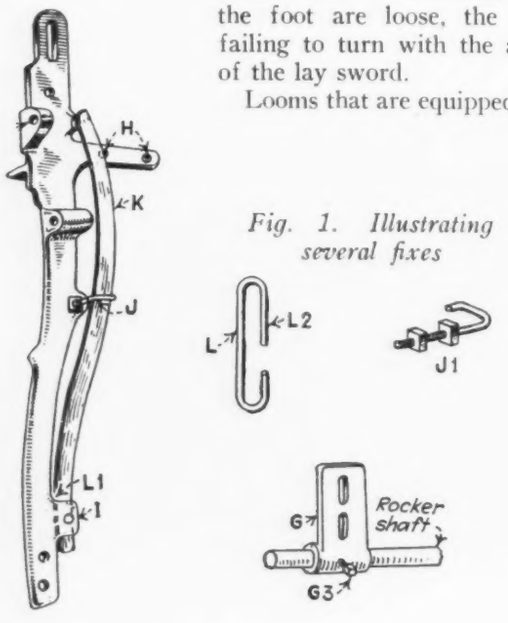


Fig. 1. Illustrating several fixes

For keeping the lay-sword in proper position with respect to the rocker shaft, a time-saver may be developed as shown at *L*. This is a piece of half-inch steel bent in position as shown, and placed around the rocker shaft and the offset for the lay spring at *L*1. The end *L*2 of the iron *L* is slightly longer than the lower end over the rocker shaft. This fix is further explained in Fig. 2.

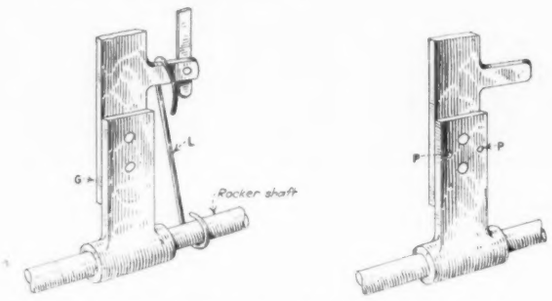


Fig. 2. Eliminating trouble at lay-sword foot

In the latter figure, the iron *L* may be seen in position. When the bolts which secure the lay sword to the lay-sword foot keep coming loose, the fixer is obliged to adjust constantly the various parts becoming disarranged as a result. The lay goes upward, causing the loom to stop off at the filling motion, which is timed to prevent this occurrence. Next the lay may fall slightly, preventing the working of the filling motion, as the lifter rod keeps the dagger from striking the frog to stop the loom. This gives the weaver broken picks and double picks, and many times one shuttle will run while the other filling has broken without stopping the loom, resulting in a loose mark. The weaver in ripping back for defects is now confronted with setting the loom perfectly, otherwise there will be tight or loose set marks. If a fixer finds the loom has been running after the filling has broken or run empty, he will often discover the source of his trouble at the lay-sword foot.

To place the iron *L* on the loom, slip the part under the rocker shaft first. Take off the lay spring and force the iron as shown over the knob. Place the lay spring back in position. Bend down the ends of the iron tight. This should be done while the bolts are tight.

Another fix which can be used in place of the iron *L* is shown at *P*. Two holes are drilled entirely through the foot and lay sword in the position shown. These can be $\frac{1}{8}$-in. holes. Next are driven through the holes small steel pins, which should be forced in and flattened down at each end. These prevent the lay sword from going up in case the bolts become loose and save the fixer many hours of trouble.

[Some lay-motion fixes were described by Mr. Wenrich in TEXTILE WORLD, August, 1932, page 74. He will discuss others in coming articles.]

Silk Turns Corner

WITH STRONG UPWARD TREND

THE meteoric rise in raw silk prices during August had a tonic effect on all divisions of the silk industry and stimulated demand to such a point that importers had difficulty in filling orders. Comparative figures issued by the National Raw Silk Exchange show an advance of 58c. on 78% 13/15 white, the Exchange's key number, within a period of four weeks. On Aug. 5 this number sold spot at $1.22 and on Aug. 30, the same grade closed at $1.80. The advance in outside trading in New York was considerably greater, some importers putting it at 65 to 70c.

Numerous elements contributed to the strong upturn, the two principal factors being the general business improvement, and the fashion importance of the new rough-surface crepes. Due to their heavy weight these fabrics consume a much greater quantity of silk than normal per yard, and once broadsilk manufacturers had gained sufficient confidence to begin buying actively, the size of individual orders showed a sharp rise.

Simultaneously came reports from Japan of a shortage of stocks; the scarcity appeared to be most acute in the particular grades needed for the manufacture of crinkle canton crepes and crinkle canton satins, which are the highlight numbers in the new fabric trend. Yokohama trading became bullish early in the month, and, while following weeks brought the inevitable fluctuations, the trend of prices demanded by exporters was upward. Cables reaching New York Aug. 22 placed Japan's summer-autumn silk crop seeds at 12% below 1931. This had been anticipated in the earlier advances, to some degree, but the firm tone was still evident throughout the last full week of August, and New York importers were convinced that the gains would hold; some, indeed, looked for further advances subject to recessions through the fall months.

Silk Sentiment Strong

At moment of writing, silk sentiment is stronger than at any time since the start of the depression. The shortage in Japan was the outcome of the curtailment policy which had been adopted earlier in the year. Pressure had been exerted by banks and other groups to shut down the reeling basins for a protracted period. The failure of Japan's previous efforts along this line made New York importers skeptical of the new movement, but it became clear at the end of July, that the shutdowns had been widespread and had resulted in a substantial curtailment.

Opinion has been expressed in the raw silk market here that closer relationship between the silk producing and silk buying divisions should be effected before Japan proceeds much further with its curtailment program. The point is made that a program might prove injurious, if not based on a thorough understanding of the actual and potential needs of the American market, since this country is Japan's largest single outlet for raw silk.

August opened firm in the New York market. The rising trend of securities prices made broadsilk manufacturers more confident and they began to cover for immediate needs; orders were light, at first, and importers had no difficulty in meeting demand. The second week brought a sharp increase followed by a setback, and the third week saw a veritable flood of business coming from all major silk-consuming groups. During the latter part of the month hosiery mills began to cover actively for fall requirements, evidently convinced that the market was due for a protracted advance.

Shipping by Rail Again

Importers' stocks were soon exhausted, and Japan was pressed to increase shipments. The time element being vital, numerous firms notified their sources to ship stocks via the Pacific coast and transcontinental rail, rather than by way of the Panama Canal, as had been originally scheduled.

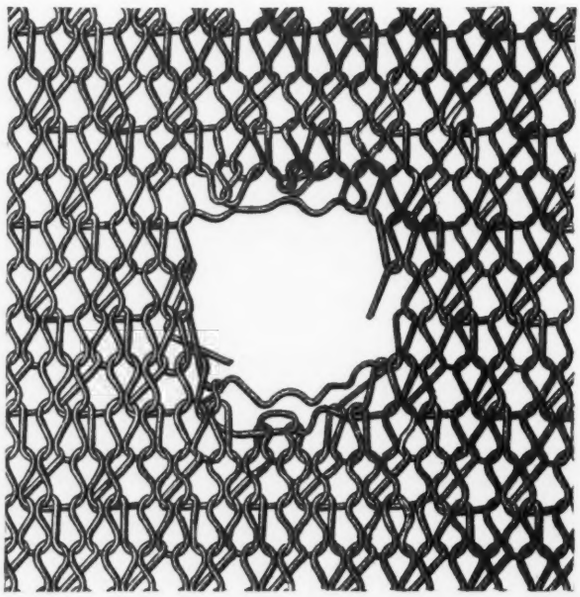
At present, the silk-consuming industries present a healthy picture, with signs pointing to spirited raw silk demand for some time. Broadsilk mills report an exceptional call for the crinkled fabrics, and a generally stronger price tone; various firms have advanced levels on crinkle canton crepes and satins, and have difficulty in filling orders.

Hosiery mills also share in the strengthening price trend, and numerous of the smaller companies have advanced their prices.

Scene in Silk Exchange in New York

Non-Run Hosiery

WINS QUICK ACCEPTANCE



Magnified view showing how broken strand makes small hole without a run in new hosiery.

THE first offerings of the long awaited non-run hosiery made their appearance in mid-summer and during the weeks immediately following there were reports of active advance buying. While various firms sell non-run hosiery made under different patents, market interest in August centered on the lines offered by Berkshire Knitting Mills, Reading, Pa., and Apex-Hosiery Co., Philadelphia, operating under the Schwartz patent and distributing through various channels. Berkshire introduced the new line at the fashion clinic held at Reading, Aug. 4, and the Apex product was placed on sale the following day in Philadelphia. Prior to these, a non-run stocking was announced at the end of July by J. C. J. Strahan & Co., and was understood to be in production at this company's Philadelphia mills.

The Schwartz non-run number is a 45-gauge stocking, Berkshire's being a 4-thread and the Apex company's a 5-thread number. Only one design is available as yet, but this design can be obtained in all the fall colors. Berkshire's being a 4-thread and the Apex company's this firm has been taking orders since Aug. 8, and reports heavy bookings. This company was getting into production on the new line in the middle of August, following a long period of experimentation. It was expected that by Sept. 10, the non-run hosiery would be in fair production, increasing to large-scale output by Oct. 1. Berkshire plans to begin deliveries Oct. 1; substantial business was being placed during August for November and December shipment. The number sells to the wholesale trade at $10.50 per doz., to be retailed at $1.35 per pair.

The non-run hosiery development has excited interest, both within and without the hosiery industry, to an extent which perhaps has no parallel since the advent of modern full-fashioned hosiery. Opinion on the significance of the new stockings runs the gamut from enthusiasm to skepticism, and it is clear that some months will elapse before any true measure of reaction can be obtained.

It was remarked that early buying of non-run hosiery seemed to have little effect on the staple full-fashioned numbers. While the number at present is being promoted and accepted as a new non-competing line, it may be assumed that the line, if successful in building volume, will later offer serious competition to staples.

Close examination of the Schwartz stocking reveal several outstanding characteristics. When a sheer staple stocking, a mesh stocking, and the non-run are compared, the impression gained is that the non-run number bears a much closer relationship to mesh than to staple. Viewed in hand, or on the form, the non-run presents the general appearance of a very minute mesh. The openings in the fabric are much larger than those in the staple number, which necessarily modifies the sheer aspect. The smooth surface, which appears to be one requirement for sheerness in the generally accepted sense, is broken by the non-run type of stitch.

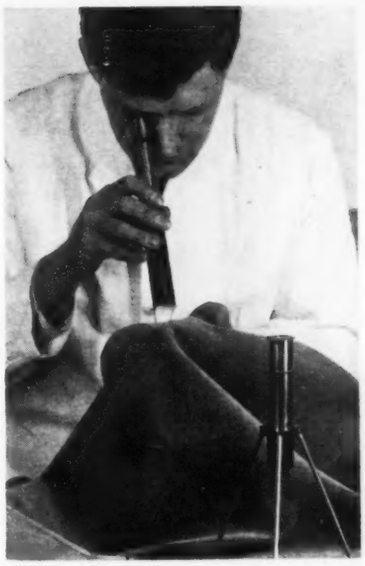
The first conclusion from a merchandising point of view is that non-run hosiery must make a market for itself, on the double sales appeal of unusual wearability and attractive mesh appearance. Whether the sacrifice of a degree of sheerness can be balanced by the economy advantage, is an issue on which the consumer herself will be the final arbiter. There is no question that the immediate future of the Schwartz stocking hinges on the importance women will attach to the lack of a sheer appearance. It should be kept in mind that, for at least a decade, the hosiery industry has been educating women to become sheerness-conscious, though, of course, the recent vogue for mesh has done much to offset this trend.

So far as attractive merchandise is concerned, the non-run hosiery leaves nothing to be desired. It is intrinsically a beautiful article and is of exceptionally light weight. One important advantage, from an appearance point of view, is that the fashion marking is invisible. The non-run stitch is used only in the body and top of the stocking, the rest being of standard construction.

With respect to the future of women's hosiery, the significance of the Schwartz non-run development lies in its implications rather than in its actualities. It is well within probability that the technique evident in the new product may develop a stocking which will rival, or even supplant, the present popular staple number. Putting it briefly, the Schwartz hosiery is a minute mesh, carrying the vital advantage of non-run, which should sell itself actively to economy-minded women so long as mesh hosiery has fashion's approval. The fate of the number as regards consumer acceptance, after the mesh vogue wanes, will depend largely on the amount of educational work done to sell the stocking on its merits as non-run merchandise.

STRICT CONTROL IS NECESSARY IN BLEACHING

Mohair Plush



By Fred Archer

BLEACHING of a fabric containing both animal and vegetable fibers is considerably more difficult than is the case with a cloth containing but one type of fiber. This is particularly true in the case of mohair-pile cloth, which contains, generally, cotton warp and cotton filling.

Of the various bleaching methods in vogue, the oldest is that involving the use of sulphur dioxide gas liberated by burning sulphur. The cloth—moistened in a dilute soap solution—is hung on racks in a closed chamber into which the gas is allowed to enter. The sulphur dioxide unites with the moisture present to form sulphurous acid, which reduces the color in the fibers. The deteriorating action of any acid on the cotton is lessened by the presence of soap. Chief objections to this method are the possibility of free sulphuric acid decomposing the cotton and the non-permanence of the bleach due to the eventual reoxidation of the color upon exposure to air.

Peroxide Method Preferred

Preferred to this method, however, are those which feature the use of hydrogen peroxide in open vats similar to large dye tubs. Vats made from Monel metal or concrete are usually employed, although wooden tubs may be used in cases where the concentration of the peroxide is not too high. Steam pipes leading into the vat should be of lead and not of iron. If wooden slats are used in corners of the tub, wooden pegs also should be used.

Theoretically, one buffer agent and an alkali such as ammonium hydroxide, caustic soda, or soda ash, should be employed in a hydrogen peroxide bleach bath. Practical experiments, however, have shown that in bleaching mohair plush two buffer agents, sodium pyrophosphate and sodium silicate, used together are more efficient than either one alone.

A 600-gal. bath is used for six pieces of approximately 300 lb. Sufficient alkali is employed to give a pH of 9.0 to 9.2, and hydrogen peroxide is added until the bath is at a strength of 4 volumes. The pH can be determined by comparison with suitable color standards. Instead of testing for pH, some bleachers prefer to test for total alkalinity by titration with standardized acid solutions. The pH, however, should never exceed 10. Above this point there is a strong possibility of alkaline destruction of the mohair. An excess of alkali also tends to decompose the hydrogen peroxide too rapidly.

The strength of the hydrogen peroxide or volume may be found as follows: Dilute 50 c.c. of the bath to 500 c.c. in a volumetric flask. Pipet 50 c.c. of this diluted solution into a casserole. Add 5 c.c. of concentration sulphuric acid and titrate with $\frac{N}{10}$ potassium permanganate. Calculations for volume are as follows:

$$\frac{\text{c.c. used} \times .17 \times 3\frac{1}{3}}{5}$$

The cloth is run over a creel into the bath and circulated for 1 hr. before it is sunk overnight. The time factor is important, and the writer finds that it is essential that the cloth be sunk at least 10 to 12 hr. to accomplish the required result. The goods are weighted with heavy timbers to insure a uniform bleach. In the morning the cloth is raised, run for 2 hr. over the creel, and given an acetic acid wash to remove any free alkali present. Theoretically the best method of drying is to hang the cloth in the air, but practical expediency calls for drying in a steam-heated dryer. Care should be taken not to overheat the mohair pile, which turns yellow on excessive heating.

The bleaching bath, which has been saved, is then tested for pH and concentration of the hydrogen peroxide left. An amount sufficient to bring the bath to required strength is added. The next lot of goods is run into the bath and worked the same way. By careful manipulation, only one-fourth to one-third of the hydrogen peroxide is used. Replenishing of the baths in this manner greatly reduces the chemical costs for bleaching, and has led to extensive use of the peroxide method.

Cost System

AT B. Z. B. MINIMIZES EXPENSE FOR UNPROFITABLE LINES

By Richard L. Spillane
J. J. Berliner & Staff

B. Z. B. KNITTING CO.
ANALYSIS OF SALES AND COSTS
MONTH OF 19

	Style	First Class		Second Class		Total Sales		Aver-age Selling Price	Cost	Cost of Sales	Gross Profit Per Doz.	Selling and Adm. Ex-pense	Dis-count	Net Profit Per Doz.	Total Net Profit	
		Dozen	Amount	Dozen	Amount	Dozen	Amount									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

Form for analysis of sales and costs

IT IS sometimes necessary for a hosiery mill to carry unprofitable styles as a sales policy in order to reach certain customers with desirable merchandise. In order to make certain that the minimum of sales effort and expense will be expended on these styles the B. Z. B. Knitting Co., Rockford, Ill., has developed a form, which is prepared in conjunction with the monthly profit-and-loss statement. This form shows the sales of each particular style during the month, the sales price and costs thereof, and also the commercial expense, as well as the net profit or loss on each particular style during the period.

In each department an equitable burden rate has been fixed; the normal output of the department has been computed; and expenses have been budgeted in accordance with the estimated production. To find the complete cost of each style sold during the month, the overhead charge is added to the direct labor, on a time and unit basis, depending upon the department, plus the standard material cost. To this manufacturing cost is added a percentage of the selling and administrative expense.

The form shown herewith gives a monthly analysis of sales and costs. It is actually 12 in. wide and 15 in. high; and is punched to fit a post binder.

The first column of the form is a record of the styles which have been active during the period. In the second column is entered the number of dozens of first-class merchandise sold; and in the third column is given the sales price. The fourth and fifth columns are for recording the quantity and sales price of all second-class merchandise sold during the period. In the sixth and seventh columns are shown the total sales in dozens of each style and the total sales price thereof. In the recapitulation, adjustments are made for returned merchandise; consequently figures show only net sales.

The average sales price per dozen of each style is given in the eighth column. Inasmuch as it costs as much to manufacture goods which after inspection are classed as seconds as it does to make first-class goods (with the exception of a small saving due to the cheaper packing), the cost per dozen for both firsts and seconds is assumed to be the same, and is entered in the ninth column. In the tenth column is extended the complete cost to manufacture the total quantity of each respective style; and it is from the total of this column that we arrive at the cost of merchandise sold during the month.

Gross profit or loss per dozen is shown in the eleventh column; and the selling and administrative expenses, which are computed on a percentage of sales, are given in the twelfth and thirteenth. Net profit or loss on each style per dozen, is shown in the fourteenth column, and the total profit or loss in the last.

Now we shall see how completely this form ties in with the monthly profit-and-loss statement and how reconciliations between the two are made. The monthly profit-and-loss statement gives the quantity of units sold during the period covered, and also shows the accumulated figures for the year, to date. It starts out with the gross sales, minus returns, allowances, and freight deductions, giving a net figure which checks with the total of the sales as ascertained from analysis of costs as stated above. These independent figures furnish an internal check between the two statements.

From the net sales is deducted the cost of goods sold, as ascertained above, which shows in total the gross operating profit made during the period. Next, the commercial expenses are deducted from the profit-and-loss statement to give the net operating profit, which should check with the profit or loss as shown by the analysis of styles.

Net operating profits or losses are not the same as the actual net profit or loss for the period; consequently provision must be made on the profit-and-loss statement for such variances as tend to either increase or decrease the results so far obtained. In order to take care of this discrepancy, the yarn gain or loss between that actually issued and the standard for each style, plus purchase discounts, is either added or deducted, as the case may be, to obtain the net operating profit or loss for the period. Purchase discounts are taken into consideration here, rather than on the perpetual inventory, because of the ease of handling them in this manner with the minimum clerical effort.

Next is added income from other sources, including rentals, waste, miscellaneous sales, and interest earned. From this figure are deducted expenses that do not have a direct bearing on the company's manufacturing program, such as interest paid out and idle plant capacity, which is a figure arrived at by over-capitalization of assets which accrue from the carrying charges of too much factory space and idle machinery. This leaves the net profit or loss for the period.

OPPORTUNITIES TO EXTEND USE OF

Waterproofing Compounds

Rubberized fabrics have many wet-weather uses

DESPITE a real demand for both waterproof and water-repellent fabrics, it is almost impossible for the consumer to obtain entirely satisfactory products of these types. There, is therefore, a need for the development of improved processing methods which will give the desired results on the wide range of fabrics which require a waterproof or water-repellent finish. The following brief discussion of waterproofing agents is intended to give a general survey of the compounds now in common use and to indicate the lines along which further investigation may prove of value.

The materials employed by the waterproofer fall into two general classes:

1. True waterproofing compounds which render the fabric impervious to water and impervious or resistant to air.

2. Water-repelling agents which cause the fabric merely to shed water under normal conditions of use.

Typical of true waterproofing compounds are rubber, pyroxylin, cellulose acetate, boiled linseed oil, asphalts, and similar chemicals. These coatings cover the surface of fabric and fill in the interstices between the yarns.

A great variety of chemicals have been suggested as water repellents, but only a comparatively small number of these compounds are in general commercial use. Materials of this group, for the most part, do not fill in the open spaces in the cloth, or make them appreciably smaller. They do, however, lower the degree of adhesion and increase the interfacial tension between the water and the fibers which surround the interstices, thereby making the fabric more resistant to the passage of water.

Water-repelling agents most commonly employed are aluminum acetate and aluminum formate, either alone or in conjunction with soaps and waxes, such as paraffin and Japan wax. Other materials of this nature include casein and gelatin rendered insoluble with formaldehyde or a bichromate; various metallic oxides and soaps; aluminum tannate; combinations of copper sulphate and soap; lanalin; petrolatum; certain alginates; and cuprammonium hydroxide.

Recently several new types of water-repelling agents have been developed, including latex compounds, synthetic resins, and colloidal dispersions of paraffin combined with neutral aluminum acetate. Unlike many of the materials hitherto employed, the last-mentioned compound is applied by the one-bath method and is said to effect no alteration in the shade or flexibility.

Among the factors which have retarded the more extensive application of waterproofing and water-repelling compounds is the fact that with few exceptions they cause a change in the appearance and handle of the fabric which in many cases—but not necessarily—is undesirable. Again, the effect obtained is seldom permanent, the goods losing their power to shed water after washing, dry-cleaning, or more or less prolonged use. Furthermore, due to lack of technical control or to desire to meet a price, many finishers have failed to turn out products which satisfy the requirements for which they are intended. In fact, only recently have any attempts been made to set up standard methods for determining the waterproof and water-repellent qualities of textiles. And finally, research for improved compounds and processes has been sadly neglected.

Reluctance on the part of textile mills to abandon time-worn methods has been cited as the chief reason for the lack of progress in the waterproofing field. Little attempt has been made to find better coating and impregnating compounds or to develop processes—similar to the cuprammonium hydroxide treatment—by means of which the surface fibers of the fabric are acted upon chemically. There is need, therefore, for research, directed not only towards improved methods of applying the compounds now in common use, but towards the development of radically new and superior processes.

There is no doubt that the market for waterproof and water-repellent finishes on cotton, rayon, silk, and wool is large, provided processes are developed which give satisfactory results and do not affect adversely the characteristics of the fabric. When really satisfactory waterproof and water-repellent finishes are made available, they will find ready application on a wide variety of fabrics now marketed without this desirable feature.

Modernization

WOULD BE SPEEDED IF CREDIT WERE MADE AVAILABLE

IS DEMAND for textile equipment, for modernization of plants, being held up by lack of adequate credit facilities?

In view of recent discussions of plans whereby Federal credit might be made available to individual companies for such a purpose, we attempted to secure an answer to the above question from a number of representative textile machinery manufacturers.

Of those opinions secured, a little more than half were to the effect that available credit would release at least a part of the latent demand. Obviously, it is difficult to estimate what part of that demand is held up by lack of credit, and what part by lack of faith in the business outlook. However the total of the estimates made by the machinery men indicated that at least $10,000,000 of business might be forthcoming shortly if a satisfactory credit plan were put into effect.

Those manufacturers who expressed doubt that such a plan would have any material effect upon the situation, did so primarily in the belief that any textile mill whose standing and prospects were good enough to permit it to participate in a Federal plan would be able to make suitable credit arrangements now with the machinery firms, if it so desired.

Since these opinions contain many thoughts of interest to textile men, we are quoting from a few of them below:

► "So long as the utter demoralization which prevailed during the spring and early summer lasted, together with the hopeless state of mind which accompanied it, even available credit would not have been very effective in stimulating purchases of textile machinery because the will to buy did not exist. However, within the last few weeks I think there has been a change in the state of mind, and today available credit for the purchase of cotton mill machinery would undoubtedly be effective in stimulating buying."

► "It is our belief that, under present conditions, if mills are unable to take advantage of the comparatively short-time credits offered by the machinery manufacturers, it is much better for them to run the machinery that they have rather than to borrow on the chance of making money in the future. We believe that any large amount of credit extended to the woolen and worsted mills for the purchase of new machinery, beyond that which they can now obtain from machinery manufacturers, would react to their disadvantage."

► "Since 1929, comparatively little new machinery has been bought; consequently most manufacturing concerns are from two to three years behind their average purchasing schedules. Machines have been wearing out, but where repairs were necessary, in many cases other machines have been robbed for the parts required . . . . . During the last three years, many improvements have been made which would enable the manufacturers to produce a better product at considerably less expense, and obtain much greater production. The desire to purchase new equipment is stimulated by the desire to manufacture more cheaply and have advantages over competitors—but in times of depression, many concerns get along as best they can with existing machinery . . . . . It would seem as though from one-half to one million dollars worth of business might be anticipated by the manufacturers of such machinery as we build, but it would be our expectation that it would be some time before the amount of equipment would be absorbed.

► "I do not believe there is much business for mill equipment—either machinery or other equipment—being held up today for lack of credit. My opinion is that the mills have been so thoroughly beaten on prices for their merchandise that they would not install new equipment no matter what could be accomplished, and will not so long as the present prices hold. In other words, as long as the market is governed by price and not by style and quality, any old machine or equipment will do the job. If prices can be permanently raised even a little above their present level and a firm market developed for hosiery and underwear, then I believe the question of style and efficiency of equipment will come back into its own, and then and only then will mills be interested in purchasing new equipment. If this condition could be brought about, I believe some kind of credit facilities other than the average local bank would become very useful and certain mills would no doubt take advantage of the availability of this kind of credit to bring their plant equipment at least partially up-to-date."

► "It is my experience that when the Government gives credit to business, it gives it by having very excellent security put up as collateral. I am sure that any mill which could put up this security with the Government could get credit at the banks, and I cannot see how the United States Government can arrange to loan money to cotton mills if the mills' financial condition does not warrant this credit..... At a later date when there is a real demand for cotton goods at a price showing a profit, I am assuming that some arrangement so that mills could get credit would be most desirable."

► "It is our opinion that there are a good many sound hosiery manufacturers that would immediately modernize their plants if they could find some way of making a profit on such product as they have been able to sell under very trying competitive conditions."

► "It is difficult to say just how much money could be advanced along a proper plan. I should estimate that probably two to three million dollars could be so advanced, provided the plan which was extended would allow a long period for the amortization of the loan at a reasonable rate of interest. When I say a long time I mean a loan plan which would work out in five to ten years."

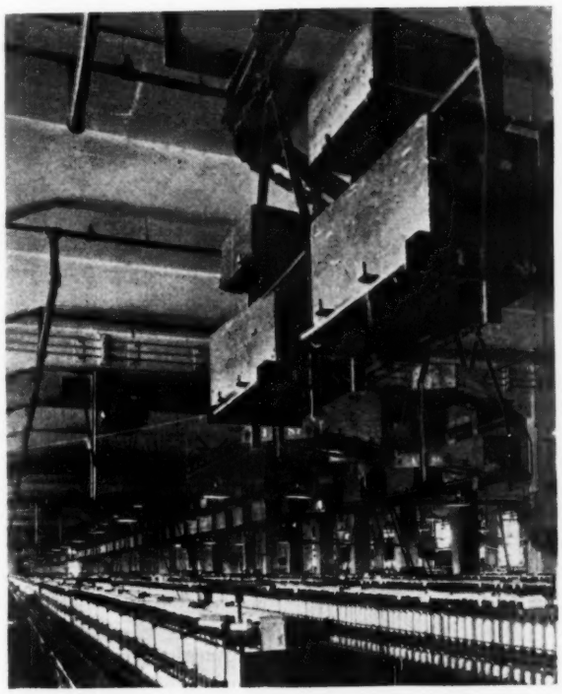
► "My own feeling is that credit is not so important to start up business in our field as would be a 'change of heart' on the part of textile people themselves that their industry has a future."

Finally, we were touched by the plaintive note in the following comment:

► "If they could get more credit they might pay what they already owe us but we hardly think it would lead to new purchases."

Bobbin Conveyor

PROVES WORTH AT MAVERICK MILLS



Overhead conveyors save time and space as compared with trucking bobbins in the spinning room

APPLICATION of a bobbin conveyor system to the spinning room of the Maverick Mills, East Boston, Mass., has proved advantageous primarily in lowering the direct labor costs of doffing. In fact, the installation has considerably more than paid for itself in two years of operation. Secondary advantages are the elimination of wear and tear on the floors due to trucking and the benefits of a precise flow of materials.

The spinning room at Maverick is 600x125 ft. and contains 225 frames of 320 spindles each, or a total of 72,000 spindles. The spooling, warping, slashing, and filling conditioning equipment is also contained in this room at the end adjoining the weave shed. It is obvious that under previous conditions the amount of time and energy expended in pushing trucks back and forth was a considerable item. It was to obviate this trucking that J. J. McElroy, superintendent, hit upon the plan of using a conveyor, the details being worked out by the Mechanical Handling Systems, Inc., Detroit, Mich.

The conveyor itself consists of an overhead I-beam from which a chain is suspended by suitable trolleys. Every 64 in. on the chain is a load-carrying trolley which supports a carrier. Carriers are designed to hold either two of the large size bobbin boxes, measuring 34x12x14 in., or three of the smaller size boxes having dimensions of $21\frac{3}{4}$x$7\frac{1}{2}$x$13\frac{3}{4}$ in.

The course of the track is down through the approximate center of the room to the unloading end at the spoolers and then back along the side of the room, the total length being about 1,150 ft. Plan of operation is as follows:

For each section of 68 warp frames, and each section of 40 filling frames, there is a loading platform erected above the spinning frames. Two doffers are assigned to each section. As bobbin boxes are filled, they are taken to the loading platform where there is room for storage. Every hour a colored light flashes for 3 min. and the doffers, having finished the frame they are on, go to the loading platform, the conveyor being in motion. Boxes of empty bobbins are taken from the carriers and boxes of full bobbins placed in the carriers without stopping the conveyor; remote control buttons are placed on each platform so that conveyor can be stopped in case of emergency.

The boxes of full bobbins are now carried to the end of the room where the conveyor comes down to floor level between the spoolers. One man stands here and unloads, placing the warp boxes on small trucks for distribution to the adjacent spoolers and the filling boxes on a short roller conveyor which carries the boxes to a Sargent conditioner and stores them there. The same operator also places boxes of empty bobbins on the conveyor to be carried back to the starting point. When the full bobbins have been unloaded, the conveyor is stopped. The operator who did the unloading takes the filling boxes from their storage place on the roller conveyor, runs them through the conditioner, and loads them on trucks for the adjacent weave room. These duties take all of his time until the next unloading period.

It is readily seen that doffers are kept at their posts and spend no time in trucking, and that the spinning room is free from trucks and from boxes piled on the frames. Each doffer is able to handle about 64,000 bobbins in a 48-hr. week. Direct labor savings are due to the fact that the doffers spend practically all their time doffing, rather than spending a good part of it pushing trucks. Warp and filling yarns are, of course, kept in different type boxes and different yarn sizes identified by colored markings.

Drive is by means of a 3-hp. motor (only 2-hp. required after starting) through a suitable speed reducer. Flexibility to meet different conditions is provided by a Reeves variable-speed transmission which gives a range of conveyor speeds from 10 to 40 ft. per min.

Mr. McElroy points out that conditions in different spinning rooms require different set-ups, but that the principle of keeping a worker at his task and moving materials by conveyors has proved sound in many industries.

Overseers'

THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in July is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "Getting a New Overseer" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

Dealing with Slack Times

Editor, Overseers' Round-Table:

AFTER THE management has decided what per cent production the department should run, the detailed supervision of labor should be in the hands of the overseer.

He knows the "character" of his help better than the super. As an example: a weave room overseer receives instructions that his department will work only three day per week full capacity, for the remaining part of the week his help must be cut down 50%. During the restricted working period there is a fixer's job capable of being handled by two men, one is single and the other married. Which of the two should be given the extra time? The overseer at least has the full facts before him.

On the question of second hands, which, I agree, is more difficult owing to the element of partial preference creeping in, it is the duty of the superintendent to check periodically departmental pay rolls, and if his instructions have not been carried out does not the overseer have to account for it? SEER

Editor, Overseers' Round-Table:

THE QUESTION of how many hands should be kept at work on short time is a little battle between all overseers and supers. I should think that it should be left to the foreman of the room to see what work he has coming along and to regulate his help according to daily requirements.

Some supers always think that the overseer has too much help, and to cut the cost will tell the overseer to lay off a few men, but it should be left to the overseer to determine how much help it takes to run his room. UNSIGNED

(Will the writer of the above please communicate his name and address).

Editor, Overseers' Round-Table:

THE DAY is gone when an overseer is an absolute dictator in his department. He can no longer assume a Napoleonic attitude and tell the super where to head in. It is well that this is so, as the super sees each problem in its relation to the welfare of the whole mill, and is in a better position to direct the policies of his several departments than is the individual overseer. The super is in possession of all the facts in regard to costs, orders on hand and future prospects, and it is his province to tell the overseer how, when and where to economize. The overseer who objects to this is hoplessly out of line, and the sooner he gets over his "great I am" attitude the better it will be for himself and the mill which he serves.

A super is in his position because he is a bigger man than the overseer, and it is his privilege and duty to direct his overseers in the same manner that the overseer directs his second hands. No good super is knowingly going to cripple any of his departments. "OVERSEER"

Editor, Overseers' Round-Table:

DURING A period of working short time I am inclined to the idea that, for the best interest of all concerned, the super and the overseers should cooperate very closely so that no injustice be done and no favoritism shown.

The overseer should, to my way of thinking, suggest to the superintendent the number of second hands or operatives that are to be employed and who they shall be. The super can then consider the matter and advise the overseers if he finds instances where the schedule can be improved on, or where men should be replaced by others. The superintendent of course is the man who should have the final say at all times; that is what he is paid for. W.D.B.

Editor, Overseers' Round-Table:

WHEN THE management finds it necessary to cut the pay roll 50%, they do not want production cut 51%, but rather 49% or less Cutting down needs even more careful thought and planning than does building up. It is not just a matter of cutting the pay roll in two, for a child who has only just mastered simple division can do that, but it needs brains to do it in such a manner that there shall be no reduction in the ratio of production.

Recently I watched with interest the experts at the famous Kew Gardens in London, slowly and carefully pruning away superfluous branches and shoots on the trees and plants in order that they should have life more abundant. I, too, might have cut off exactly the same number of branches, but my cutting might have meant death to the tree.

When it becomes necessary to lay off any of the workers, the superintendent

GETTING A NEW

"THE superintendent of a large mill in the lower section of the state," said Superintendent Chase, "brought up an interesting question during a conversation we had not long ago. It isn't a new problem, by any means, but one that we should think about. One of his oldest overseers had died, and he didn't know whether he should employ an experienced man from another mill, an overseer who had formerly worked under him, or if he should promote a young second hand who had worked in the department for several years, studying his job, and preparing himself for more responsibility. This mill, it seems, has always employed their overseers from other plants, and only once in the last ten years has a man within the organization been promoted to overseer. What would you have done, had you been in my friend's shoes?"

"That would depend very largely upon the ability of the young second hand," Pete replied, "but he should get the promotion if, in the superintendent's opinion, he has the goods. I believe that every department should have at least one promising young fellow as an understudy for the overseer. If the second hands and section men know that there is an opportunity for promotion, they will work twice as hard, and will learn all they can about their jobs. We can remember lots of men who might have become good overseers, if given the proper encouragement, but who had their spirits broken because every time the overseer's job in their department was open, somebody from another mill was

♦

Round-Table

OVERSEER

brought in to fill the place. The man with ability and ambition isn't going to hang around forever with a mill that has a reputation for never promoting men within the organization to the higher positions."

"There is a lot in what Pete has just said," Bill spoke up, "but overseers brought in from other mills are respected and obeyed by the workers a lot more than some fellow who used to be one of them. Theoretically, Pete's argument sounds great, but my observation has been that a fellow who has worked up from sweeper cannot maintain good discipline in the same mill. More than that, it is a good thing to bring some new blood into the organization when there is an opportunity; and, if overseers are obtained from the best operated mills, you always get some new and valuable ideas along with them. We've seen that work out right here more than one time. If I had been in your place, chief, my answer to that superintendent would have been to hire the best man he could get from an efficiently operated mill, but by all means not to approach any of *my* overseers."

▸Should mills follow a policy of promoting men to positions higher up or should they obtain department heads from other plants?

needs all the possible help he can obtain from the overseers. No one understands the individual traits and qualities of the workers better than the overseer, for he is in constant touch with them day in and day out. For instance, there is the man who impresses the superintendent by working at lightning speed during the latter's occasional visits, but the pace is reduced to that of a snail as soon as he is not being watched. On the other hand there is the plodder who works steadily every moment of the day, but whose movements give no impression of the amount of work he is really doing.

The wise superintendent will remember that when he was an overseer there were many details and difficulties in his department that could not have been seen and realized by his superior on his occasional visits.

ALFRED LAYZELL
England

Editor, Overseers' Round-Table:

I AM greatly in favor of the superintendent and his overseers having a meeting, so that the superintendent may put before the overseers of his plant the amount of work now in process, the possible orders that are expected to come in, and bring to their attention that the mill force must be curtailed during the slack period. Of course, the foreman in the different departments knows the men who work with him better than the superintendent as he comes in contact with them more and can pick his men who work best with him and the interest of the company, not forgetting the cost per hour of the employee. The successful overseer's endeavor should be to keep his overhead down during the dull period.

So, I say in conclusion that the superintendent and overseer should work with each other in reducing the force.

JAMES BEARDWOOD

About Secret Processes

Editor, Overseers' Round-Table:

FROM AN experience of more than a half a century covering most every type and phase of business, I, like Pete, have learned that this secret business is all bunk; while we are going ahead with the thought in mind that we have a monopoly on some particular idea our competitors may be miles ahead of us with the same process.

SUMMARY

DEALING WITH SLACK TIMES. *Approximately 26% of the replies stated that the overseer, because of his more intimate knowledge of the workers, should have the say about cutting down the force in slack times. Another 19% believed that the superintendent was the more competent to handle the problem, while the majority, representing 55%, advocated close cooperation between overseer and superintendent.*

▼

I have known personally of many instances like the one Pete mentions where the company was jealously guarding a secret idea, only to awake to the fact that it was one that had been tried out and discarded by some competitor years before.

In this modern age when we are traveling so fast, and machinery and processes become obsolete so quick, the free interchange of ideas is very essential to the industry as a whole.

J. S.

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The Six-Hour Day

Editor, Overseers' Round-Table:

I THINK Pete's idea is right about the six-hour day, for this is the machine age and that is the only way we will ever bring about good times.

As for Bill's ideas about the government butting into such matters, if something isn't done the government will soon take most of the profits of the manufacturer in taxes to feed and clothe the unemployed. Of course the six-hour day would have to be a national law with the manufacturer allowed to put on three or four shifts according to what business he has. Then let the workers work for the one who pays the most. The price of goods would go up, but no one minds paying higher prices if they have the money.

There would have to be a protective tariff against goods coming into this country.

J. W. SIZEMORE

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What Price Experience?

Editor, Overseers' Round-Table:

IT IS my opinion that every young man should have some experience before he is given much opportunity in the textile game. In getting this experience it is probable that he will make a great many mistakes, and if he attempts to gain his experience in one mill it is often true that his superiors will see the past mistakes so glaringly that it is hard for them to see his possibilities. Then too, a man is much more likely to be well informed on production methods, and methods of overcoming difficulties, if he has the advantage of other people's ideas.

G. E. GREGG

THE PERSONAL PAGE

W. H. COFFEY has been elected president of Cooper, Wells & Co., St. Joseph, Mich., succeeding M. M. Henderson resigned. Mr. Coffey has been vice-president. N. LAHR, formerly secretary became vice-president, and BENJAMIN KASISCHKE, formerly treasurer, now assumes the duties of secretary and treasurer.

W. D. CURTIS, a director of Jenkins-Wright Co., Los Angeles, Calif., yarn dyers and bleachers, has been elected secretary-treasurer of the company.

K. TAKEI and Y. YANAMAKA, executives of Katakura & Co., Ltd., Tokyo, large silk manufacturers of Japan, have been visiting New York and other American centers.

GEORGE B. OGAN, for 17 years manager of the Chicago office of L. C. Chase & Co., has been appointed general manager of the entire Chase organization, with headquarters in the company's new general offices at 295 Fifth Avenue, New York. L. C. Chase & Co. were recently acquired by Sanford Mills.

H. H. GREENE, cotton buyer for the five large plants of the West Point Mfg. Co., who has been connected with that company for the last 25 years, has been elected president of the Citizens Bank & Trust Co., West Point, Ga., succeeding the late BRYANT DIXON. Mr. Greene will retain his position as cotton buyer.

H. H. SCHELL, general manager, Sidney Blumenthal & Co., New York, is organizer and first president of the newly founded Velvet Guild.

DR. EUGENE MANNING, with degrees from University of Delaware, Massachusetts Institute of Technology, and University of Pennsylvania, has resigned his position with the research laboratory of the Elkland Leather Co. to become head of the textile chemistry and dyeing division at Clemson College (S. C.) Textile School, for the 1932-33 term.

GASTON G. GAGE, who has been connected with the Aragon-Baldwin Cotton Mills, Chester, S. C., for about 10 years, has been added to the teaching staff of the Clemson College (S. C.) Textile School.

J. A. WOODHEAD, formerly sales engineer of the U. S. Testing Co., Inc., is now associated with Hess Goldsmith & Co., New York, in the capacity of manager of the commission throwing department.

HOWARD R. MERRILL has been appointed selling agent of the Wuskanut Mills, Farnumsville, Mass. He will have associated with him Leon M. WIGGIN, formerly of the Pacific Mills, Lawrence, Mass.

HEARN SWINK, for several years a member of the office force of the Cannon Mills Co., has been elected secretary of the corporation, succeeding T. T. SMITH, who died July 18.

JOHN CONARD has been appointed Philadelphia representative of the Van Gelder Yarn Co., Inc. From headquarters at 615 Drexel Building he will cover the Pennsylvania territory.

D. BERT GILBERT is now southern sales director for the Dexdale Hosiery Mills, Lansdale, Pa. He was recently southern representative of Gotham Silk Hosiery Co.

Geo. B. Ogan

Underwood & Underwood
H. H. Schell

GEORGE FISH has resigned as resident manager of the Elizabeth plant of Textiles-Incorporated, Charlotte, N. C., to become associated with C. A. Rudisill in managing his group of mills at Cherryville, N. C.

JOHN B. GARRETT, formerly superintendent of the Aragon plant, Aragon-Baldwin Cotton Mills, Rock Hill, S. C., recently accepted a similar position with the F. W. Poe Mfg. Co., Greenville, S. C., succeeding A. B. Adkins, resigned.

E. A. HILL, for many years superintendent of Tucapau (S. C.) Mills, is now superintendent of the Clinton (S. C.) Cotton Mills, Inc., having succeeded F. W. Gurry, who resigned.

R. D. SLOAN has resigned as superintendent of the Rossville (Ga.) plant of Standard-Coosa-Thatcher Co. H. H. Eagar, Jr., general superintendent of finishing, is now in charge of the Rossville and Chattanooga finishing plants.

R. T. SMITH, formerly of Rockmart, Ga., is now superintendent of the Bladenboro (N. C.) Cotton Mills.

MISS MABEL NOLAN has been appointed style and merchandising counsellor of the Artcraft Silk Hosiery Mills, Philadelphia.

J. G. HILLBORN has been appointed to cover the Pennsylvania territory for the Tubize Chatillon Corp. He succeeds E. W. MARTIN, who was recently appointed sales manager.

PROF. B. LEPPERHOFF, textile technician and author, has retired from his duties at the College of Textile Industries, Barmen, Germany, after 32 years' service to devote himself to writing and research.

J. L. MACDONALD, president and manager of MacDonald & Sons, Moncton, N. B., has been elected to the executive council of the Canadian Manufacturers' Association.

RICHARD E. MURRAY has been appointed superintendent of the Border City Mills, Fall River, Mass., to succeed J. FRANK HEFLINZ.

ALDEN M. MOORE, for 49 years with the Cascade Woolen Mills, Oakland, Maine, and for the last 43 years overseer of the spinning room, has retired, due to poor health.

W. N. MCCANN, for many years overseer of carding at the Moultrie (Ga.) Cotton Mills, has been promoted to general overseer of carding and spinning.

ALFRED WIGGLESWORTH, overseer of weaving, Neponset Woolen Co., Canton Junction, Mass., has resigned.

EDWARD S. BOOTE has been appointed assistant agent of the Ludlow Manufacturing Associates, Ludlow, Mass.

Distinction for Mr. Ix

Unsought laurels have lately been placed on the brow of a prominent silk manufacturer. It came about through the death of H. P. Re of Coldwater, Mich., the man with the shortest name in the country. Newspaper scribes from coast to coast searched directories for a successor. Wendell Emmett Ek of Richmond, Va., was prematurely hailed as the superlative in shortness, but he has given way to the textile industry's candidate, Frank Ix, head of Frank Ix & Sons, North Bergen, N. J. Mr. Ix and his family bid fair to hold this distinction. He has five sons, all in the silk industry.

Obituary

EDWARD MOIR, aged 86, head of the Crown Mills, Inc., Marcellus, N. Y., and active in the woolen industry for more than 50 years, died at his home in that town Aug. 26. A native of Scotland, he went to Marcellus 50 years ago as superintendent of the Crown mill. He was president of the Carded Woolen Manufacturers Association for a number of terms and active in woolen industry tariff matters.

WILLIAM H. MONTY, aged 63, founder and president of the Southern Spindle & Flyer Co., Charlotte, N. C., died suddenly Aug. 26. He moved to Charlotte from New Hampshire 38 years ago.

THOMAS FRANCIS SHAW, formerly operating a wool goods sales agency as a department of Frederick Vietor & Achelis, New York, died in New York at the age of 80. He retired 10 years ago and his business was continued as C. M. Deland & Co.

C. FURHMAN NETTLES, JR., aged 32, secretary of the Swift Spinning Mills, died at Columbus, Ga., on Aug. 7, as the result of a self-inflicted gun-shot wound.

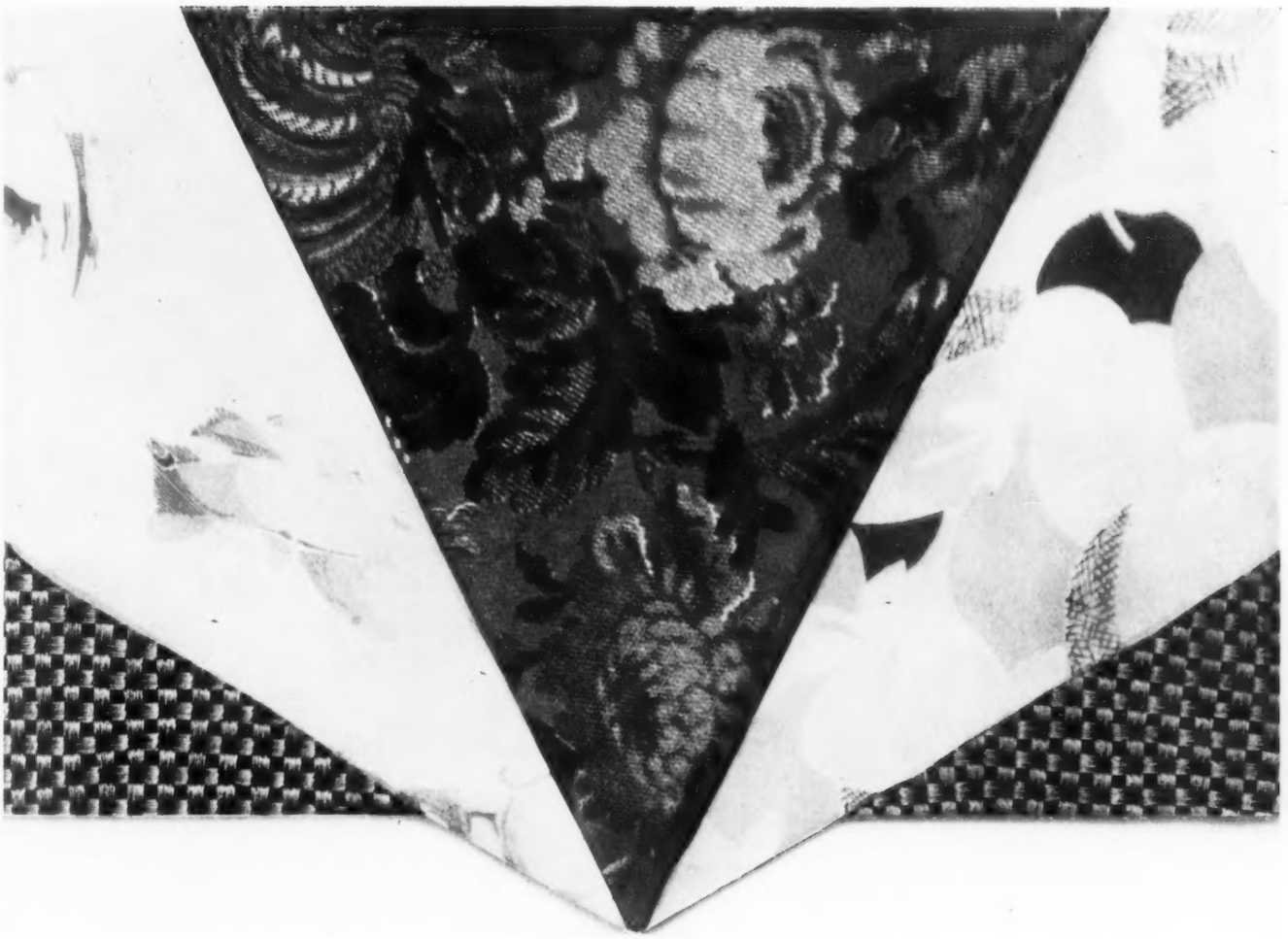
CAPT. SYDNEY J. CRAGG, secretary-treasurer of the Toronto (Canada) Carpet Co., died in Toronto on Aug. 12. He was also secretary-treasurer of the Barrymore Seamless Wiltons, Inc., Philadelphia, and vice-president of Barrymore Cloth Co., Ltd., and the Campbellford Cloth Co., Toronto.

IRVING S. SARGENT, aged 63, assistant treasurer of the Southern Belting Co., Atlanta, Ga., died Aug. 13 in that city. He was a native of Massachusetts and went to Atlanta over 40 years ago.

CHARLES EDMUND BARLOW, vice-president and a director of the American Thread Co., New York, died in England Aug. 21 while visiting that country.

PRINTING *Viscose* FABRICS

Effects Gained by Various Processes



Group of fabrics woven of viscose-process yarns and printed in variety of methods and effects

FUNDAMENTALLY there is little difference in methods employed for printing viscose fabrics and those used for cotton. It is possible, therefore, to produce various styles of prints, either by machine or screen methods, and to obtain practically any desired degree of fastness on a wide range of fabrics. There are, however, certain additional precautions which must be taken when handling rayon. Thus, the printer must be on the alert to prevent mechanical damage to the goods, he must avoid overheating of the fabric during drying, and he must be particularly careful in his choice of thickening agents.

Styles of prints possible on viscose fabrics and classes of dyestuffs commonly employed include direct prints with basic, direct, chrome-mordant, vat, naphthol (including Rapid Fast and Rapidogen dyes), and Indigosol colors; basic-color discharges on direct-dyed or developed grounds; vat-color discharges on developed, naphthol, and vat-dyed grounds; white discharges on vat-dyed grounds; white resists under Indigosols; Indigosol overprints on Indigosols; vat overprints on vat grounds; and vat-color resists under Indigosols.

In the accompanying illustrations are shown several effects on printed fabrics which are now in vogue. From left to right, No. 1 is a new rough-crepe dress fabric of DuPont rayon and discharge printed to resemble a woven design popular in woolen fabrics; No. 2 shows a floral design direct printed on an all-rayon voile made with Tubize Chatillon delustered yarn; No. 3 shows a tapestry fabric of DuPont rayon printed (apparently by the screen method) to simulate a brocaded design; No. 4 is a crepe fabric made with Viscose Co. rayon and direct printed in a multi-color geometric design in two colors.

Rough Crepes

PROMINENT AMONG THE SEASON'S NEW RAYONS

By Carl C. Mattmann, Jr.
Fabric Technician
Fitchburg Yarn Co. and A. M. Tenney Associates

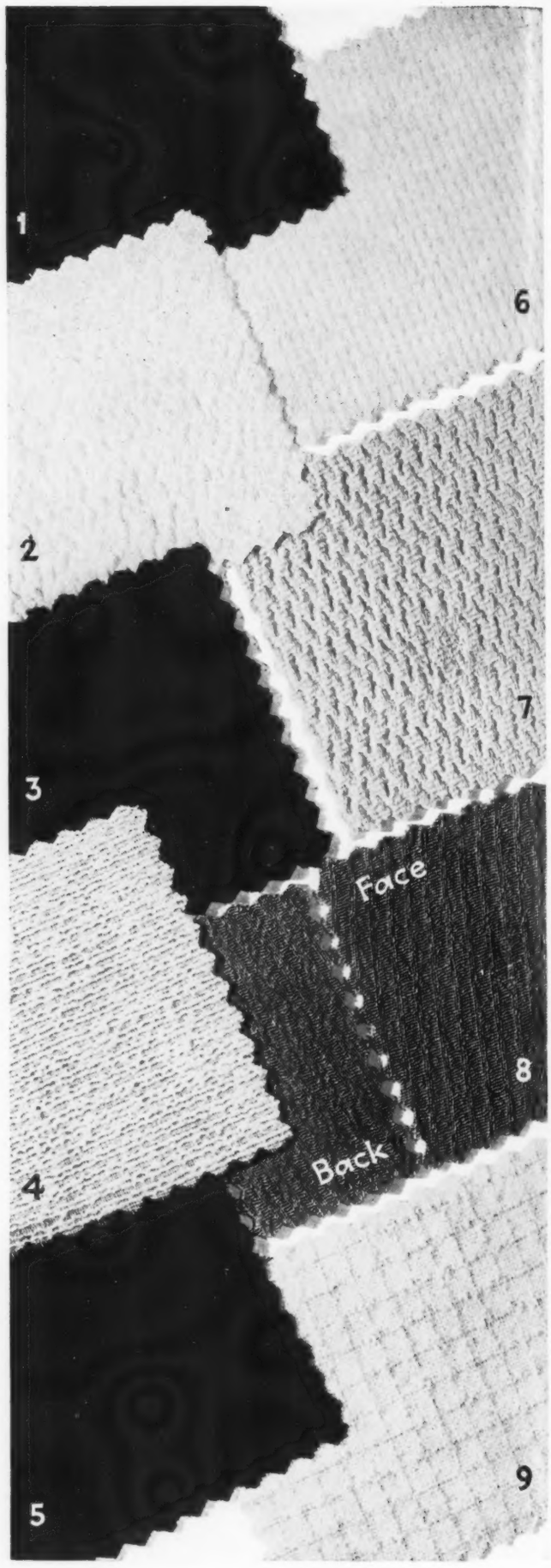
ALTHOUGH matelassés and other distinctive weaves are likely to enjoy a period of public favor during the coming season, the more simply woven rough crepes are now making a real sensation and the demand indicates a continuance of their popularity. The fabric technician should welcome the demand for these rough crepes, particularly in this period of enforced economies, because, if he handles the matter right, he can turn out a varied line of interesting and attractive samples without great inconvenience or expense. In some cases, the savings in effort, time, and money which are possible in the developing of samples can be extended to the weaving of the pieces themselves.

The economy to which I refer lies in the original selection of a warp which may be used as the basis for a variety of samples. A warp judiciously selected can be used to develop fabrics for half a dozen purposes. The range of types is by no means confined between narrow limits; and the writer illustrates herewith rough crepes for street wear, party wear, and evening wear all developed from one warp. Unfortunately, the variations in requirements for width of warp in the reed sometimes prevent this plan being adopted for piece production.

Rough weaves, particularly when they meet the extremes of this season's demand for exceedingly rough crepes, call for more ends per inch in the warp than do crepe-de-chines and similar fabrics. To skimp on the warp is to invite slippage along the filling threads, because the latter, in waving up and down across the finished fabric, are of greater length than the filling threads in a comparatively smooth fabric where they are laid straighter. The additional length affords more room for the warp threads to slip. (In like manner, the waviness in the warp requires a higher pickage to prevent slipping of the filling threads.)

Another reason for warp slippage lies in the fact that the bands of filling of each twist are wider—for example, six right and six left in many rough crepes, as against two right and two left in crepe-de-chines. Hence less resistance is offered to the movement of the warp threads by the twist in the filling. The warp in a rough crepe must be sufficient to hide the filling. A coarse yarn is not the answer to the latter problem, as it will cause too much shrinkage.

It is particularly desirable to have an adequate number of ends per inch in a warp which may be used for a variety of fabrics, because an inadequate warp will restrict the range of pickages which would otherwise be possible. Select your sample warp with the definite idea that it will serve a multitude of purposes. You will then be prepared to turn out a variety of samples at a minimum cost. Where you can apply the same policy to fill an order requiring, say, 200 looms, do so, as you may wish to change to a new fabric before the warps are exhausted. Plan beyond the original fabric and endeavor to get the most money possible out of every warp.



1. *Rough Crepe, Rayon Warp.* Warp: 48" in reed, 126 sley, 42 3/1, 100/40-den. rayon, 5 t. Filling: 48 picks of 100/40-den. rayon crepe, 55/60 t., 10 l., and 200/32-den. rayon crepe, 45/50 t., 2 r. 6-shaft plain. Another good version: 4 picks r. 4 picks l. 200-den. rayon crepe and 8 picks r. 8 picks l. of 100-den. rayon crepe on 4x1 box.

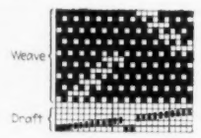
2, 3. *Rough Satins, Acetate Warp.* (2) Warp: 46" in reed, 220 sley, 44/5/1, 100/34-den. dull-luster acetate, 5 t. Filling: 60 picks 41/2 spun-rayon crepe, 6 r. 4 l. 5-shaft satin. (3) Warp, 45½" in reed, 280 sley, 35/8/1, 75/20-den. bright acetate, 5 t. Filling: 48 picks 100/40-den. rayon crepe one way only for 6 picks and 100/40-den. rayon for 6 picks. 8-shaft satin.

4. *Rayon Sport Sheer.* Warp: 42" in reed, 72 sley, 36/2/1, 100/40-den. rayon crepe, 2 r. 2 l. Filling: 32 picks 80/2 spun rayon, 2 picks, and spun-rayon 5,400-yd. boucle, 2 picks. 4-shaft plain.

5. *Ribbed Effect.* Warp: 48" in reed, 135 sley, 45/3/1, 120-den. cuprammonium crepe, 2 r. 2 l. Filling: 80 picks same as warp, 2 r. 2 l. Weave:

6. *Waffle Effect.* Warp: 48" in reed, 135 sley, 45/3/1, 100-den. cuprammonium crepe, 2 r. 2 l. Filling: 70 picks 70/2 spun cuprammonium. Fin. 38½". Weave:

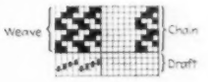
7. *Pucker Fabric.* Warp: 50" in reed, 160 sley, 40/4/1, 100/34-den. dull-luster acetate, 5 t. Filling: 44 picks 29/2 spun-rayon crepe, 2 r. 2 l. Dobby effect on 22 shafts. Weave:



8. *Diagonal.* Warp: 45" in reed, 162 sley, 54/3/1, 100/34-den. bright acetate, 5 t. Filling: 50 picks 15/1 spun-rayon crepe, 2 r. 2 l. 24-harness twill, $^{1}/_{2}$ $^{1}/_{2}$ $^{1}/_{2}$ $^{2}/_{2}$ $^{2}/_{1}$ $^{2}/_{1}$ $^{2}/_{1}$ $^{2}/_{1}$ $^{2}/_{1}$ $^{2}/_{1}$.

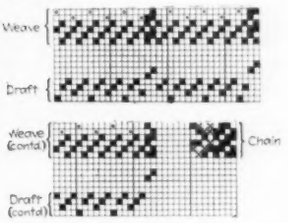
9. *Spun-Rayon Check.* Warp: 42" in reed, 40 sley, 20/2/1, 11,500-yd. spun-rayon spiral and 3/18s wool and spun-rayon bouclette. Filling: 40 picks same yarns as warp. Plain with crossbar in warp and filling.

10. *Rayon Sport Fabric.* Warp: 43" in reed, 112 sley, 28 4/1, 100/40-den. rayon, 5 t. Filling: 44 picks, 24/1 spun-rayon crepe, 2 r. 2 l. 4-shaft weave.

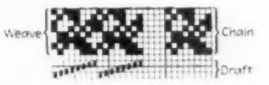


11. *Novelty Bouclé Sport.* Warp: 43" in reed, 36 sley, 36/1/1, 3-end bouclé consisting of 2 ends spun rayon and 1 end acetate. Filling: 36 picks bouclé same as warp. 8-shaft.

12. *Reversible Fabric, Four Yarns.* Warp: 45" in reed, 180 sley, 60/3/1, 100/34-den. bright acetate, 5 t. and 2-end stripe 60/2 spun silk, regular twist. Filling: 48 picks 2/50s wool crepe 35 t., 2 r., 2 l. for 4 picks, and 100/40-den. rayon for 2 picks. 8-shaft check effect. As this is woven on a 4x4 loom, attractive results may be obtained by changing filling yarns. Weave:



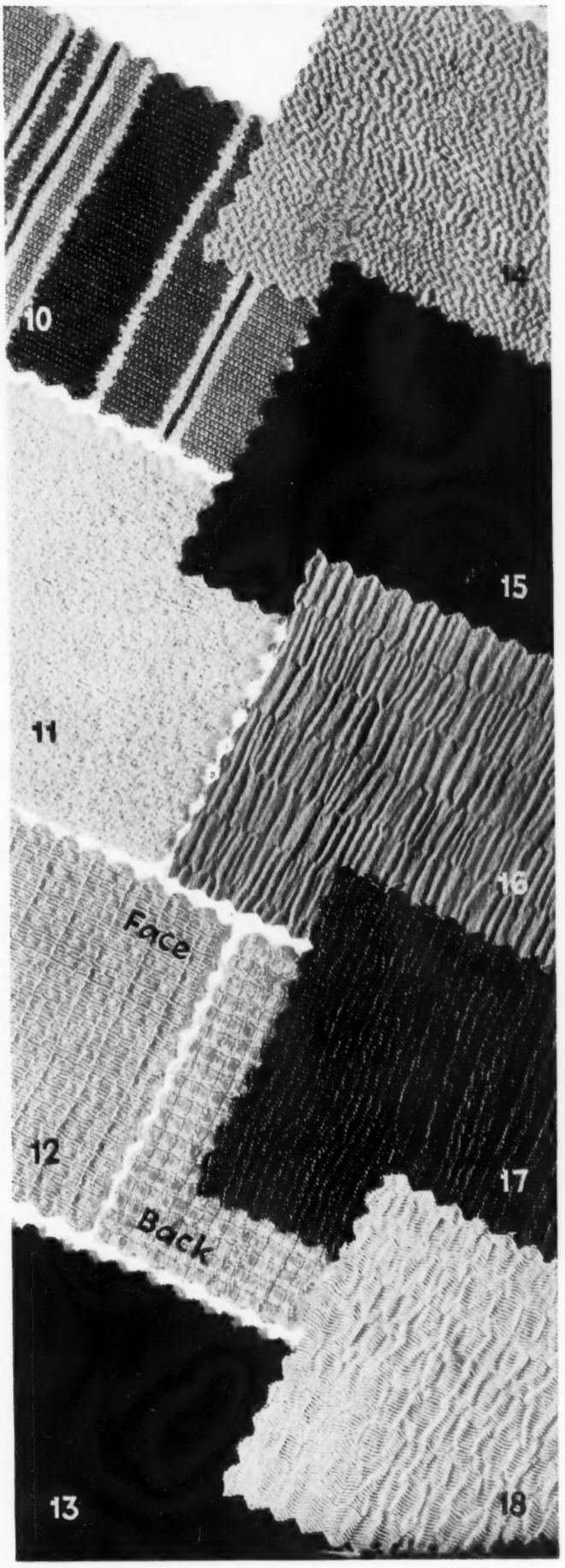
13. *Spun-Rayon Heavy Sheer.* Warp: 44" in reed, 40 sley, 20/2/1, 11,500-yd. 2-ply spun-rayon spiral. Filling: 48 picks 15/1 spun-rayon crepe, 2 r. 2 l. 8-shaft weave. Fin. 38½".



14, 15, 16. *Rough Crepes, Acetate Warp.* (14) Warp: 48" in reed, 138 sley, 46/3/1 reed, 100/34-den. dull-luster acetate, 5 turns. Filling: 42 picks. 29/2 spun-rayon crepe, 2 r. 2 l. Plain weave. (15) Warp same as 14. Filling: 48 picks 41/2 spun-rayon crepe, 6 r. 6 l. Plain. (16) Warp same as 14. Filling: 64 picks 100/40-den. rayon crepe 24 r. 24 l. Plain. Note: Additional versions of these crepes, using same picks, yarns, and plain weave, can be obtained as follows: 2 r., 2 l., 6 r., 6 l., repeat; 48 r., 6 l., 6 r., 6 l., 6 r., 6 l., repeat; 12 r., 12 l., 4 r., 4 l., repeat.

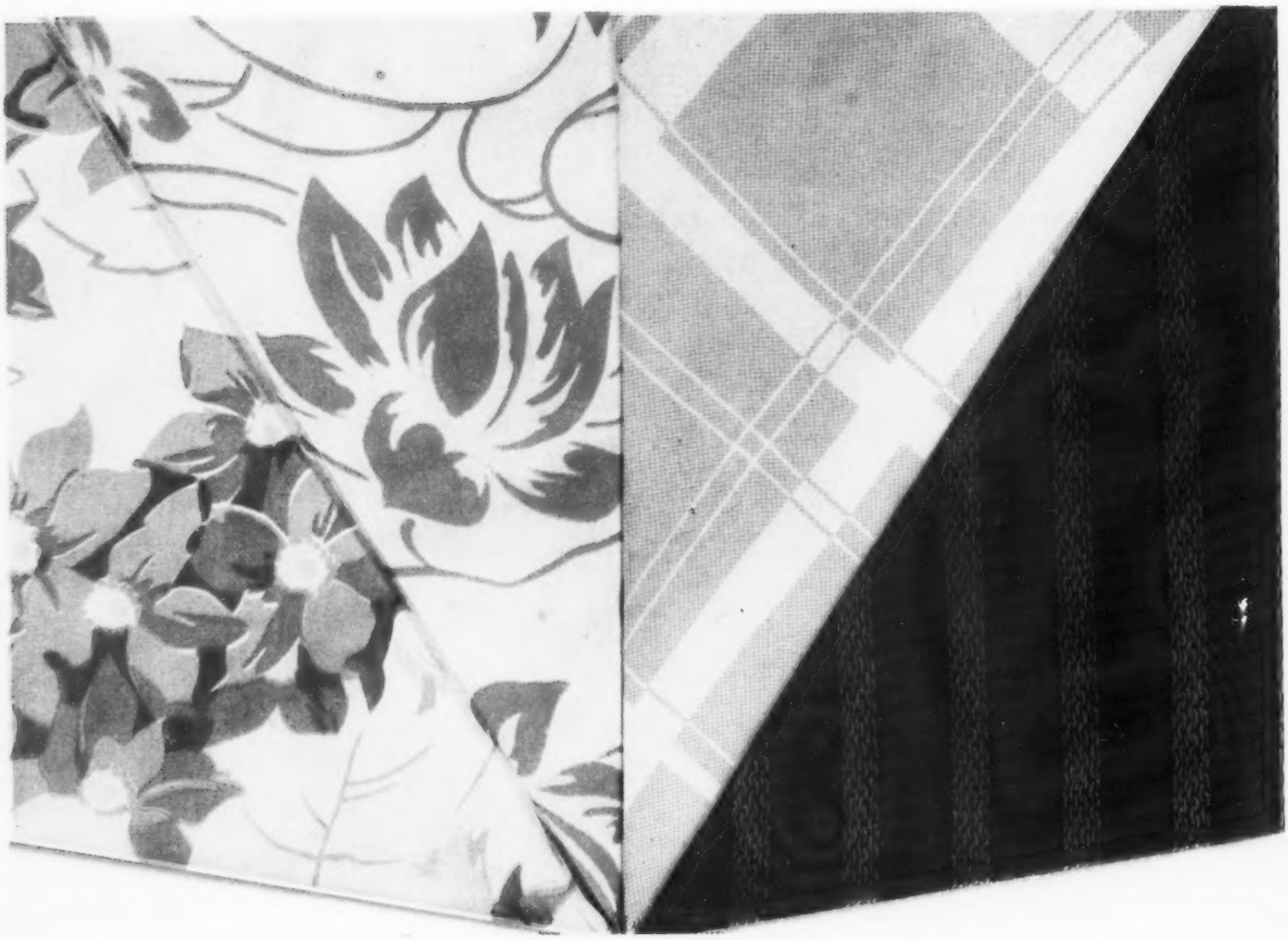
17, 18. *Rough Crepes, Silk Warp.* (17) Warp: 50" in reed, 360 sley, 60/3/2, 20/22 Japan. Filling: 42 picks 15/1 spun-rayon crepe, one-way twist only. Plain. Cross dyed, silk only being colored. (18) Warp: same as 17. Filling: 40 picks, 28/3 spun-rayon crepe, 4 r. 8 l. 6-shaft plain.

Note: Finished widths in all cases, unless otherwise specified, 39".



PRINTING *Acetate* FABRICS

Direct and Discharge Styles



Group of fabrics wholly or partly of acetate yarns showing several effects peculiar to this type of construction

WHILE only a comparatively few classes of dyestuffs are employed for printing cellulose acetate fabrics, for the most part those colors which can be used meet all reasonable demands for fastness to light and washing. Vat dyes (of the Indigoid group) and the Indigosols are direct printed, the former preferably by the potassium carbonate method with the addition of a suitable penetrating agent. The special colors for cellulose acetate—such as the Acele, Celacyl, Celanol, Celanthrene, Celliton, Nacelan, Tetracele, Trianol, and SRA dyes—enable production of either direct or discharged styles. When brilliancy, rather than fastness, is the chief requisite, the basic colors give satisfactory direct prints. For the production of black shades aniline black offers interesting possibilities.

Novel printed effects can be obtained in mixed fabrics made from cellulose acetate and viscose, cotton, or silk, by using dyestuffs which have an affinity only for one of the component fibers. Somewhat similar effects on cotton-acetate (and viscose-acetate) mixtures can be obtained with the Indigosols, as these dyestuffs—depending on the method of application—color both the cellulose acetate and cellulose to the same shade or leave either fiber uncolored.

Seasonable printed fabrics composed wholly or in part of acetate yarns are illustrated above. From left to right, No. 1 is a Celanese ninion printed in a multicolor floral design; No. 2 is a single-color floral design on an all-acetate voile made from Tubize Chatillon yarn; No. 3 shows a viscose-acetate crepe made from Viscose Co. yarn, the viscose alone being printed in a geometrical pattern; No. 4 shows a printed Celanese suiting for street wear designed to give a wooly appearance to the fabric.

ADVERTISING PAGES REMOVED

LETTERS TO THE EDITOR

'Fight' and 'Fight Together'

BALTIMORE, MD.

Editor, TEXTILE WORLD:

The writer sent your article in June number, "A Fighting Job Still Ahead," to a certain large manufacturer in Pennsylvania. It struck me as being a well written article. I am today in receipt of letter from the general manager of that company, and I quote from his personal letter:

"The tear sheet, page 47, from the June TEXTILE WORLD sent to me from your office, seems a curious reflection of the present unsettled and troublesome times. The first paragraph declares we are all in a 'fight.' In the next to last we are told we—'even competitors—have got to fight this battle out together.'

"Now, I ask you what is meant by 'fight' and 'fight together'? In a fight, does not one struggle against another? Are we to fight each other 'together'? Or are we all, together, fighting against some common foe—perhaps panic or fear or greed or all of these and more? Does it not make 'all the difference in the world' how we look at this? Must we all go mad and 'fight' each other to see who can reach annihilation first? If that is the idea, why not rest on our oars and let ourselves be carried with the flood?

"Bacon wrote 'Competition to the crown there is none, nor can be.' And Dryden, 'There is no competition but for the second place.' Why not seek the crown and let who will follow and compete for the second place?"

This may interest you.

F. A. LAZENBY.

[*Editor's reply:* I have read the manufacturer's comments with great interest. His question as to whether "we all are, together, fighting against some common foe—panic, or fear, or greed or all of these or more" reflects of course the idea I had in mind and which I thought was made entirely clear in the editorial. I think it entirely logical that we can be in a fight against all the forces which released, and have been released by, the depression—and yet not a fight with one another. It certainly seems to me that I tried to make that thought clear. Frankly, I think your correspondent's emphasis upon this particular point was just a little captious. However I certainly like the thought he presented in his concluding sentence.]

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Sees Reason for Degeneration

Editor, TEXTILE WORLD:

My particular interest in textiles has been the promotion of a new patented non-run stocking fabric, with characteristics identical to the existing knitted fabric except that "runs" will not develop.

Several of the largest hosiery manufacturers and machine builders have indicated a great desire to secure this fabric patent, which they claim would be revolutionary to the hosiery industry, but apparently, with all their resources, are not inclined

to contribute to the development of the equipment.

This attitude has shown to me one reason for the industry's fast degeneration, in contrast to the bold and courageous principles upon which it must have been built.

DISCOURAGED.

•

Our Idea of a Testimonial

Editor, TEXTILE WORLD:

Am enclosing money order for $1.00 and wish you would send me TEXTILE WORLD for four months.

I am out of work at the present time but can hardly get along without the paper. Please send it as soon as possible.

H.S.

•

More Comments on the Monthly

Editor, TEXTILE WORLD:

In the new form I am particularly pleased with the organization of the Table of Contents as well as with the corner notices attached to each of the digests for each fiber. This helps make the magazine a good reference book in addition to its qualifications of a trade paper. The program for the June number is ambitious and makes the number valuable for executive or superintendent, overseer and others who fill positions within the textile industry. It appears to me that the future of the TEXTILE WORLD is bright. Incidentally, you have very attractive advertisements which ought to be kept with file copies because they in themselves record graphically fashion trends and the history of development within textiles. I like the new form.

WALTER HUMPHREYS,
Secretary, National Association of Wool Manufacturers.

Editor, TEXTILE WORLD:

Regarding the new set-up of TEXTILE WORLD, let me say first that the June issue certainly impresses me with the fine job you have done, but incidentally permit me to add that I shall miss seeing and browsing about in your publication weekly as has heretofore been my custom.

It is perhaps true of many others besides myself that limitations of time would not permit fully digesting the contents of weekly TEXTILE WORLD, while in its new monthly form this would not be true. That is a distinct advantage to readers which I am sure will be appreciated.

On the whole, I cannot but feel that you have made a change which will result in satisfaction to both your readers and your organization. Congratulations and best wishes.

H. H. ILER,
Mechanical Engineer, Union Bleachery.

Editor, TEXTILE WORLD:

I was agreeably surprised when I received the first monthly issue of the TEXTILE WORLD. My surprise consisted in finding that you covered so many branches of the textile and allied industry, in the grouping of each subject and the cross reference index. I missed the weekly visits but now I find that you have given sufficient material for study until the next monthly issue.

I appreciate the valuable mill experiences and technical information contributed as it often saves us considerable research and congratulate you on your success in gathering these contributions from various technicians and managements.

WARREN P. SEEM,
Julius Kayser & Co.

Editor, TEXTILE WORLD:

I have gone rather carefully over the June issue; there are many good articles in this issue. Several in particular—Who Pays for Technical Progress?—Hedging Cuts Loss—Overseers Round-Table is always good—and also Questions and Answers are always full of valuable information. I am of the opinion that the change from weekly to monthly to me at least will be welcome, and I have no doubt many others. I wish you continued success with your most valuable magazine.

GEO. F. BRIETZ,
Supt., Selma Cotton Mills.

Editor, TEXTILE WORLD:

I wish to commend you on your change from a weekly publication to that of a monthly publication especially if the June issue is to be a fair sample.

What you have to say on page 95 of the June issue is quite true. Therefore, your new arrangement of contents on page 45 will be quite helpful. I have noted with a great deal of interest that during the last few months you have seemed to have more technical and semi-technical articles rather than news articles. This, I believe, will add considerably to the value of your magazine.

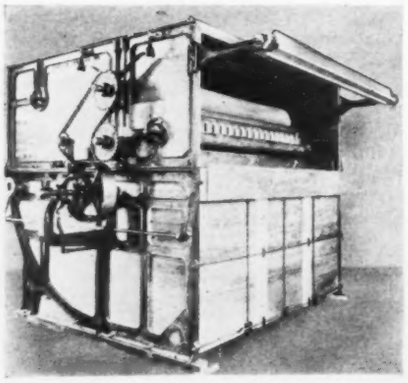
H. H. WILLIS,
Director, Textile Department,
Clemson College

Editor, TEXTILE WORLD:

As far as the technical end is concerned, we believe the busy executive could keep up more readily by reading the TEXTILE WORLD each month rather than four times a month as before. As for news, however, some of it may become rather stale in the monthly issue. In our humble opinion, TEXTILE WORLD fills a definite need in the industry, and the advantages of the new policy outweigh the disadvantages.

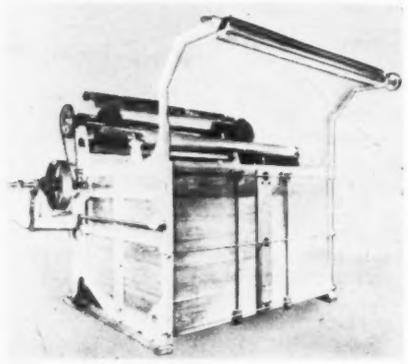
H. M. PASKOW

NEW MACHINERY



Cloth Washer

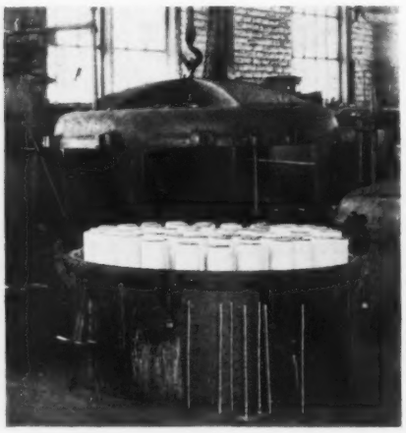
A CLOTH washer, to be known as Type 116, is being placed on the market by Riggs & Lombard, Inc., Lowell, Mass. To prevent washer wrinkles and uneven scouring, the tub has been made nearly 10 ft. from front to back with a depth of about half that amount, these dimensions giving the goods ample room to open up, move around, and change folds. The watertight suds box is drained by a pipe entirely outside the machine in order that possible damage by iron rust or verdigris may be avoided. The back of the suds box is pivoted so that it can also act as a stripper board to facilitate loading of the machine. Main cleat, breast, and unloading rolls are mounted in oilless bushings. A recent installation is reported to scour 20 pieces of medium-weight goods in 1 hr. and 35 min.



Dye Kettle and Bleach Tub

RECENTLY developed by Riggs & Lombard, Inc., Lowell, Mass., is a woolen and worsted piece dye kettle of the standard iron-frame type, lined with 3-in. cypress stock. Ball bearings or oilless bushings are used throughout, automobile-type disk clutches are standard equipment, and provision is made for individual-motor drive when desired. Supporting and reinforcing rods are arranged to permit double wear on the staves before they require replacing. The kettle is suitable for mills which are not required to make frequent color changes.

A new Riggs & Lombard bleach tub is an adaptation of the iron-frame type of dye kettle arranged with squeeze rolls, closed coil, and special interior treatment for bleaching wool fabrics by the peroxide process.

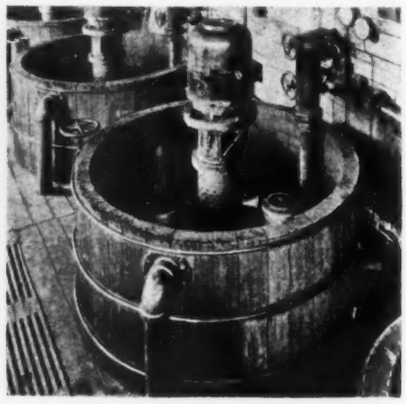


Package-Dyeing Machine

FOLLOWING an extensive investigation of the merits and demerits of the rigid-tube package-dyeing system, Franklin Process Co., Providence, R. I., has decided to market a machine of this type as an addition to its regular line of Franklin package-dyeing machines. In the development of the new machine special effort has been expended to achieve the following results: minimum loading and unloading time, short dye bath, minimum floor space, low upkeep cost, low labor cost, and a one-unit system for maximum production under conditions of the average dyehouse.

Advantages in the rigid tube for sales yarn, as disclosed by the Franklin investigation, are as follows. A winding operation is eliminated by winding from spinning or twisting bobbin direct to dyeing package (although mills willing to stand the expense can wind Franklin packages in the same way by employing special winding arbors). Perforated tubes are purchased outright and thrown away, eliminating the nuisance of shipping empty springs to the spinning mill and keeping account of them. A disadvantage is in the additional cost of perforated tubes as compared with ordinary tubes. In the case of a mill which spins and dyes, the foregoing does not apply, Franklin reports, because the expense of special arbors and of springs is a one-time expense and the cost of knit sleeves (sometimes used on perforated paper tubes) is not high. It is also pointed out that the metal springs have an advantage in strength and in their suitability for a tightly wound yarn package.

In the new Franklin rigid-tube machine the holders are vertical spindles of special design permanently attached to the bottom of the machine. When loading, four or five packages are dropped on each spindle and are held in place by a spring and plate device under the cover, without any caps or fasteners to be screwed on or adjusted. There is little opportunity for spindle breakage. The length of dyebath is the same as in the spring type of machine (i.e., 8 lb., or 1 gal. of liquor to 1 lb. of yarn) and the labor cost is also the same.

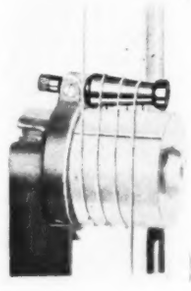


Top- and Yarn-Dyeing Process

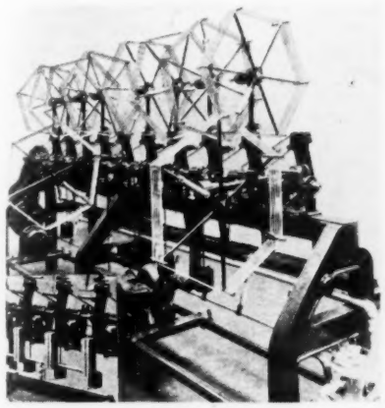
A PROCESS for dyeing worsted top which is said to enable the economic production of solid-shade fabrics previously produced only by piece-dyeing, has been announced by the Abbott Machine Co., Wilton, N. H. Equipment includes special machinery for winding, dyeing, and drying woolen and worsted yarns. In the case of top, it is wound under tension through a special gilling machine to a perforated metal dye spool. No twist is put in the sliver, and the density of the package is sufficient to prevent slumping when the dye spool is wet. The wound spool is placed on end over a proper orifice and locked there in an open kettle of special design. The circulation is positive and the dyeing, even on light shades, is stated to be uniform throughout. After dyeing, the spool is dried at moderate temperature. No backwashing is necessary, and the top after balling may be spun directly without recombing. Yarn may be dyed in the same machine and handled in the same dryer with no changes other than in winding.

Ball-Bearing Separator Roll

THE elimination of roller laps and the resulting waste of silk and loss of production on Model 5B doubler-twisters is the object of a separator roll recently introduced by Atwood Machine Co., Stonington, Conn. This



ball-bearing "lap-proof" roll also reduces split ends and singles. It is made of hardened and polished steel and may be installed on any Model 5B Atwood machine. The accompanying illustration shows the application of this roll to a single feed-roll unit.

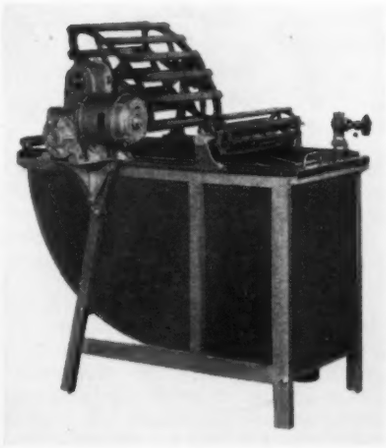


Skein Gassing Machine

FOR gassing (or singeing) individual threads where subsequent operations require the yarn to be in skein form, a skein-gassing machine has been brought out by Cocker Machine & Foundry Co., Gastonia, N. C. The design and arrangement of the blast-type burners and the use of a suitable gas and air proportioning valve are said to permit singeing at 600 yd. per minute with low fuel consumption. The traverse produces a clearly defined "Grant" wind, which is easily leased and tied. Swifts are independently clutch driven and may be collapsed for doffing. For efficient operation, two workers are employed, one in front to replace exhausted bobbins and start swifts, the other in back to doff, lease, and throw the swift back into running position. A suction fan removes char developed at the burners. The accompanying photograph is a rear view with two swifts in leasing breaking, and doffing position. A front-view insert shows the burners.

Sample-Dyeing Machine

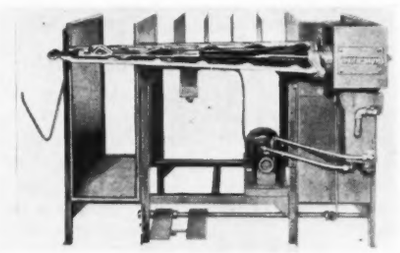
TO evolve dyeing formulas accurately from trial lots, Grand Rapids Textile Machinery Co., Grand Rapids, Mich., has developed an all-metal sample-dyeing machine for handling tubular knit fabrics. It is said to give the same treatment to a 20-yd. sample as to a full roll of a regular batch. The low speed of a two-speed reduction gear box, built as one unit with a ⅓-hp. motor, allows a 20-yd. length the full time at rest in the bath, and the fast speed is suitable for dyeing full rolls. A satisfactory rinse in three minutes is possible, it is claimed, starting from the time the valve is opened to dump the scour until the dyebath is drawn to the proper height. The water-supply



pipe extends the full width of the tub on the back. A bell-shaped syphon jet on the end of the steam pipe causes a vigorous circulation throughout the tub. Tank is made of 18-gage Monel metal and is hung in welded steel frame. Front roll runs in roller bearings; and oval reel, in self-aligning roller bearings. Zerk Alemite lubrication is used.

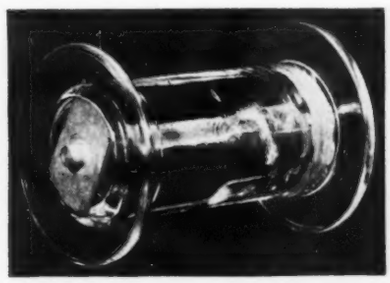
Combination Starter

CAST-IRON combination starters of water- and dust-tight construction have been developed by the Industrial Controller Division of the Square D Co., Milwaukee. Unit consists of an across-the-line starter, motor-control switch, and test jack, and provides protection against thermal overloads and low voltage. Switch mechanism of these starters, built in two sizes known as Class 8532S and 8536S, is enclosed in cast-iron cabinet having machined flanges and fitted with rubber gaskets.



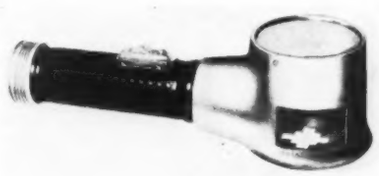
Hosiery-Inspection Form

SMITH, DRUM & CO., Philadelphia, are offering a new power-driven hosiery-inspection form. It can be furnished for foot-treadle or hand-lever operation. The stocking is held under tension in a flat position, which facilitates trimming; and after the preliminary examinations, a second operation takes place in which sufficient tension is exerted to break any very weak threads. An adjustable heel piece is provided to accommodate stockings of all sizes. An adjustable narrowing piece is likewise provided. The inspection form itself is of solid bronze, thus eliminating the possibility of paint peeling. A large compartment at the left end holds goods to be inspected, while one at the right end holds stockings that have passed examination. The drive is from a ⅛-hp. motor.



Pyrex Steaming Bobbins

PYREX is the main constituent of a new steaming bobbin, known as "Chenco," being introduced to the silk and rayon industries by Chemung Engineering Corp., Elmira, N. Y. Barrel and flanges consist of a single Pyrex unit, this mounted firmly on a rust-proof metal mandrel easily removable by pressure of the fingers on a spring-clip arrangement. The variety of mandrels available affords flexibility of application to various machines and operating conditions, since the mandrels are interchangeable. The Pyrex employed in the bobbin has been produced by Corning Glass Co., with its new "process No. 5," designed to afford increased strength and uniformity. Yarn cleanliness is particularly stressed, due to imperviousness of Pyrex to liquids and to the absence of recesses and holes where foreign substance can collect. Mill tests on white silk, it is reported, showed 65% reduction in dirty cops. Slow absorption of heat and rapid cooling off of Pyrex are claimed to prevent drying out and tendering of the silk next to the barrel of the bobbin.



Illuminated Counting Glass

AN electrically lighted textile counting glass, known as Electro-Lens "Junior," has been placed on the market by the Electro-Lens Sales Co., New York. This device consists of a flashlight unit, equipped with an Eveready No. 935 battery, and double lens with five-power magnification, automatic focus, providing a 2-in. field of vision. There is a removable plate which permits counting textile fabrics on all dimensions from ⅛ to 1 in.

QUESTIONS AND ANSWERS

Life of Cotton Spinning Rings

Technical Editor:

Can you tell me how long a spinning ring should wear on medium counts, say with 1¾-in. ring, and how much money should a ring of that size earn for a mill before it is time to put in another new ring? *(7917)*

To answer this unusual question is extremely difficult, because the earning per ring is very indefinite and is a quantity in which mills as a rule take no interest. However, the life of rings and the time for their replacement are matters which can be quickly and accurately determined.

In general, first-class rings will last anywhere from six months to 50 years, depending on the manner in which they are started up, the care which is given them, and the kind of yarn and travelers used. When the surfaces of the ring contribute to undue and excessive traveler wear, when these surfaces make it necessary to run such light travelers that the bobbins are soft and poorly wound, or when the uneven winding tension caused by poor rings and worn travelers makes fuzzy and uneven yarn, then it is time to renew the ring. To be more specific, we should say that when the excess cost of travelers, added waste, and lost production equals or exceeds the interest on the cost of a new ring, replacement should not be delayed.

If you will send samples of your rings to the ring manufacturers, they will doubtlessly be glad to examine them both physically and metallurgically, and give an opinion as to whether or not the bearing surfaces are in a satisfactory condition.

▼

Soaking Silk Warps

Technical Editor:

Kindly outline the methods employed for soaking silk for warps. *(7937)*

Warp stock is soaked from 20 to 30 min. at 90° F. in a bath containing 12 lb. of a soluble silk-soaking oil in 50 gal. of water (for 100 lb. of silk). Warp stock of 13/15-denier is soaked for 20 min., while 20/22-denier silk is soaked for 30 min. After soaking, the silk is hydro-extracted for 3 min. at 900 r.p.m. basket speed. A soap-and-oil emulsion can also be used, consisting of 3 lb. of soap and 6 lb. of neatsfoot or olive oil. If a soluble silk-soaking oil is employed, it will be found that the amount of free acid, fat, and moisture all have a bearing on the results; and silk-soaking oils should therefore be tested to insure uniformity. If the soap-and-oil emulsion is employed, care must be taken to see that the emulsion does not tend to separate and leave an oily film on the top layer of the silk.

▼

Defect in Silk Fabric

Technical Editor:

Can you tell us from the swatches of silk enclosed what caused the defects in this woven material? *(7940)*

The samples show a distinct filling streak which is apparent in the finished article. The defect is the more noticeable in the plain sample because the piece is properly woven. The filling is ruining this cloth. The sample of printed French crepe shows this defect to a slight extent only, as the piece is overbeating in the loom, thereby attaining a crepy appearance.

We offer the results of several tests on the filling. Right twist: 40 turns with a 5% take-up due to twist, 41 turns with 5% take-up, 40½ turns with 5% take-up, 40 turns with 4% take-up, averaging 40.37 turns with 4¾% take-up. Left twist: 42 turns with 3½% take-up due to twist, 41 turns with 4% take-up, 42 turns with 5½% take-up, 42 turns with 4% take-up, averaging 41.75 turns with 4.19% take-up. One twist is more pronounced in the woven cloth than is the opposite twist, giving a slightly dirty appearance.

▼

Analyzing Silk Fabric

Technical Editor:

Would you be kind enough to give me the following information? First, in dissecting a sample of woven cloth, which is the best procedure? Second, how many cocoon filaments are figured in one denier? That is, if a thread contains 40 filaments, what denier would it be? Third, there is a warp crossing used in warping which is called box or star crossing. How is this made? *(7932)*

When dissecting a sample, we find that it is advisable to cut at right angles and to pull out a number of warp threads and filling threads so as to leave a fair margin of unwoven warp and filling extending. This makes it possible to determine which system or thread lies on the top of the weave and which lies on the bottom.

After finding the weave, we then determine the ends per inch. In a taffeta, for example, we might count 20 ends in a ½-in. glass; that is, 20 on top. Then we have 20 on the bottom or a total of 40 to a quarter, which means that there are 160 ends per inch. If the sample were a satin, and we found five repeats to ½ in., we should have 5 x 8 x 4, or 160 ends per inch.

The next step is to find the ends per dent. Under the rule, 160 ends per inch would be divided three times; that is, two ends in an 80-reed, or three ends in a 53⅓ reed, or four ends in a 40 reed. It is a problem to determine which of these figures is correct. If we hold the sample against a good light, it will often be noticeable that the ends are grouped in clusters of twos, threes, or fours separated by a faint streak caused by the wire of the dent. Counting these groups or dent marks with a ¼-in. glass will disclose the number of dents per inch.

Star Warp Crossing

With reference to your inquiry regarding cocoon filaments, 1⅓ denier is figured for each filament. A thread with 40 filaments would therefore be 53⅓ denier or would be four-thread, 13/15 denier.

The star cross is made as shown in the accompanying diagram. It is rarely used and will give considerable trouble if not properly made.

▼

Good Practice in Skein Mercerizing

Technical Editor:

We have a Smith-Drum skein mercerizing machine, and should like information as to the amount of stretch which should be put in the yarn before immersing it in the caustic solution. Should this stretch vary between singles and two plies and between yarns of different counts? The skein used is a 54-in. skein and the poles are 4 in. in diameter. Also, we should like to know the length of time necessary for the yarn to remain in the caustic and the length of time and temperature of water necessary for rinsing. *(7875)*

The amount of stretch to use in the Smith-Drum skein mercerizing machine is not readily expressed in figures, as it varies with different yarns. It depends upon the twist, cotton staple, and whether carded or combed yarn is used. The purpose of the stretch before immersing in the caustic is to bring the yarn, which shrinks somewhat in boiling-out in the skein, back to normal length, or beyond if it will stretch easily enough. A moderate stretch means a good luster and no loss of yardage or change of count in the yarn.

It would be better if the poles of the machine could be worked according to some rule in terms of inches. The machine has a range of settings, but the setting to use has to be determined by experiment. After fully loading the machine, stretch so that the sides of a skein of yarn can be squeezed together by the hand to the extent of about ½-in. inward from each side. If the setting on the machine comes just over or under the length found, use the nearest setting, or the one below if there is danger of injuring the yarn. It will probably be necessary to use somewhat less stretch on fine single yarns, and perhaps on fine two-ply, as these are sometimes easily damaged. Too much tension on the machine will cause it to growl and blow fuses. The right stretch will be reached below this point.

Not more than one kind of yarn should be run on the machine at a time, unless it has been found that the normal settings for the different yarns are nearly the same.

The yarn is usually left in the caustic 3½ to 4 min. It usually has a wringing-out period also, sometimes as much as 3 or 4 min. This, too, counts as mer-

QUESTIONS AND ANSWERS

cerization time. While it is wise to be rather cautious in making any change, it is our opinion that this time can be cut down a minute or two without detracting from the mercerization or losing much caustic that might be squeezed out. Probably the gain in time will more than offset the slight loss in caustic.

Different operators have different ideas on washing. The method which washes out the caustic sufficiently so that the yarn will not shrink on releasing the tension, and which employs the least hot water and least machine time is best.

It has been recommended to wash for ½ to 1 min. at 140° F. and 2 min. cold, or to wash cold for 3 or 4 min. It is doubtful whether this is sufficient. If a good warm-water supply is available, we suggest washing at 140° F. for 4 or 5 min. and then putting on enough cold water to cool off the machine and yarn. If not, try washing 5 min. cold and then give a warm wash in a tub before scouring. Make sure that the yarn does not shrink when it is taken off the machine. If the yarn does not use up an excessive amount of acid when soured at the end of the cold wash, the warm wash can be omitted. As a rule, however, the use of warm water for several minutes on the machine is considered preferable.

▼

Bunches in Cotton Yarn

Technical Editor:

We are having some trouble with loose ends in the cloth, and I am inclosing several of the ends which the inspectors have picked out. We spin our warp yarn into 8½s from 1.10-hank roving. Can you shed any light on the subject? (7897)

In most instances it appears that the hard spots or bunches are due to improper creeling on the spinning frame. The indications are that the operator is squeezing the ends together with too much pressure and possibly has used a little moisture on the fingers to assist in putting the new roving onto the one running out or being taken out. This piecing is too hard to be drafted by the spinning rolls and goes through in a bunch. There are some hard bunches in the samples that would seem to indicate that the intermediate operator put too much twist in the end pieced up, and these did not draft properly.

Following are some of the causes of the bunches of which you complain. By checking up on them you may be able to remedy some of your present troubles.

1. When operator pieces up an end at the roving processes, she puts too much twist in the end and moistens it to assist in the piecing-up.

2. Too much twist is being put into the roving. Do not put in twist in order to overcome machine conditions or other conditions. Have good ends on skewers, clean out the tops of the flyers and have the top rolls oiled systematically.

3. Spinning rolls are set too close for amount of twist in back stock. Weights are too light (light leverage), especially on back roll. Many mills today are making coarse yarns from coarse roving, whereas the frame was originally built for fine yarns and fine rovings, and therefore the weight on rolls is too light.

4. Too much twist is being inserted in the yarn, keeping the end from breaking down when the bunches come through the roll.

Why not make some end-breakage tests both on the roving and spinning processes, checking the reason for each break? This would be the real way of solving the troubles you are now having. At one process too much leverage is being exerted on the yarn, possibly at the slasher, this cutting the yarn at the bunches.

▼

Stain in Semi-Decated Fabric

Technical Editor:

We are interested to note question and answer No. 7912 on page 101 of the August TEXTILE WORLD.

As manufacturers of the semi-decating machine, we would like to comment on this and say that the stains on the cloth in all probability do not come from the source mentioned in the answer but from not having enough covering on the cylinder. We believe that if the user of this machine will make a practice to wind on about six or eight layers of the apron before starting on the goods the trouble will disappear.

The cylinders on this machine are so constructed that no condensation can possibly come through the outside of the cylinder unless there is a loose tube or the steam is unusually wet.

PHILIP H. SEE,
Manager, Parks & Woolson Machine Co., Springfield, Vt.

▼

Stripping Sweater Clips

Technical Editor:

Can you give me a chemical explanation of the pink tint which appears on sweater clips and other forms of shoddy if they are left in the stripping bath too long? What is your opinion as to the relative merits of open-tub stripping and stripping in a pressure machine, with particular reference to the above difficulty? (7899)

Stripping agents ordinarily used on sweater clips or other forms of shoddy are dependent for their action on a reducing action. The reducing agent is usually sulphur dioxide. Some colors are not susceptible to discharge by reducing action. However most of the colors used on sweater clips can be reduced considerably; but not all of them can be reduced into a permanent colorless form, as some colors, on exposure to the oxygen in the air, will again assume part of their original shade. It is necessary, therefore, to wash out the colorless base from the material being discharged to prevent such reoxidization.

As you are probably aware, there are defects in wool materials known as sulphite faults or sulphur dioxide effects. These faults appear in various forms depending upon the particular dyestuff employed. In some cases, for example, dyed fabrics if subjected to action of sulphur dioxide are reduced to a colorless or yellow tone. With colors that ordinarily have a good fastness to stoving, sulphur dioxide at times forms an additive compound. It seems very possible that something along these lines is what happens when sweater clips and other forms of shoddy are left in the stripping bath too long. That is, the sulphur dioxide may unite with some of the dyestuff to form a compound having a pinkish tinge.

The pressure machine is usually preferred for stripping, although an open tub is reasonably satisfactory.

▼

Equipment for Ribbonzene

Technical Editor:

We shall appreciate your advice as to the most appropriate equipment for the production of ribbonzene. We should also like formulas for the binding material for both rayon and cotton used in this product. (7900)

It is our understanding that Japan is the largest producer of ribbonzene; but a few textile manufacturers in this country list it among their products. We have been informed that in the production of ribbonzene, the ends are run from a small warp beam, through a fine reed, through a small polished brass ring to group the ends together, and then through a starch or gelatinous mixture and over drying cans. The mixture used must contain a generous amount of gelatin or other adhesive in order to bind the ends closely together.

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Irregular Line in Hosiery

Technical Editor:

We are inclosing a sample of a full-fashioned stocking showing an unsatisfactory stitch in the steps. Will you kindly advise us as to the cause and remedy? (7910)

We believe that the irregular line in the steps of the high-spliced heel can be corrected by covering this portion of the heel with split dividers and by adjusting the splicing snappers. These snappers should be adjusted very delicately to tension the splicing thread slightly. If the splicing thread passes over a wick fabric, this alone will afford practically enough tension. The take-up wires should be kept clean to permit free movement of the take-up ring, which should not be too heavy for this light thread.

NEW PUBLICATIONS

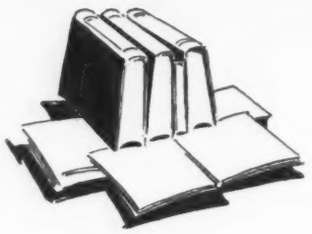
AMERICAN COTTON MANUFACTURERS ASSOCIATION; Report of Proceedings of the 36th Annual Convention, Charlotte, N. C.; W. M. McLaurine, secretary; 160 pp.

Contains biographical sketch of B. B. Gossett, president of the association, and a complete report of addresses, committee reports and open discussions at the annual convention in Atlanta. The book contains a list of active and associate members.

TEXTILE ANALYSIS; by S. R. and E. R. Trotman; J. B. Lippincott Co., Philadelphia; 301 pp.; $6.50.

One of the authors of this work conducted a class in advanced textile technology for some years in University College, Nottingham, England, and the work is based on notes drawn up for this class.

The contents has 18 major subdivisions, which show the scope of the work, as follows: identification and determination of textile fibers; physical tests for textile materials; determination of specific gravity and viscosity; standard volumetric solutions; analysis of organic compounds; acids; indicators and their hydrogen-ion concentrations; alkalis; bleaching agents; water and effluents; analysis of fibers; oils; organic solvents; formaldehyde, tannins, "blueing agents," glycerol; starch, dextrin, glue, gelatin, casein, and vegetable gums; metallic salts; nitro-compounds, amines and phenols; detection and analysis of dyestuffs.



INHERITANCE; by Phyllis Bentley; The Macmillan Co., New York; 592 pp.; $2.50.

This chronicle of the Oldroyds, a family of Yorkshire wool manufacturers, is one of the outstanding recent novels. To a textile man, however, it is more than that. As the author follows the fortunes of the family for more than a century, she dramatizes one of the most stirring chapters in industrial history. She portrays the courage, the beauty, and the tragedy, that went into its making. Here one finds the age-old but ever-new antagonism between capital and labor; the resistance to new improvements which replaced men; the struggle, on the part of each class, for what it regarded as right. But the conflict is softened by the mutual respect which strong men, even though on opposite sides, feel for each other; and by the human relationships developed through the generations.

To any reader, the book offers life in its most vibrant phases. To the textile industry, it offers the saga of its own background.

Business Literature

Belt Rating Tables. Graton & Knight Co., Worcester, Mass. has issued "Research Belt Rating Tables for Economical Power Transmission," providing a new and practical method of selecting correct leather belting for power drives.

Pumps. De Laval Steam Turbine Co., Trenton, N. J., describes in Catalog B-5 its multistage centrifugal pumps with single suction impellers. These may be built with as many as seven stages and for heads exceeding 1,600 lb. per sq.in.

Humidity Control. Foxboro Co., Foxboro Mass., has issued a new folder on "Measurement and Control of Atmospheric Humidity" featuring Foxboro instruments for this purpose.

Air Conditioning. Parks Cramer Co., Boston, Mass. Importance of bodily comfort in work and value of air conditioning, described in non-technical article in "Parks' Parables."

Lubrication. The New Departure Mfg. Co., Bristol, Conn. Ball bearing lubrication analyzed, with explanatory illustrations.

BUSINESS NEWS

P. G. MUMFORD, president, AMERICAN MACHINE & METALS, INC., announces that the Tolhurst Machine Works, Inc., a subsidiary has purchased Sweet & Doyle Foundry & Machine Co., of Green Island, Troy, N. Y. The two companies last named will be under the supervision of Perry Holder, manager and vice-president of the Tolhurst company. Alexander F. Zak will be in charge of operations. The combined companies will be located at Green Island, the factory site of the Sweet & Doyle Co.

CHARLES E. MAHER has been appointed Mid-West representative of the Onyx Oil & Chemical Co., Jersey City, N. J. His headquarters are at 620 Orleans St., Chicago. He was formerly associated with Nyanza Color & Chemical Co.

ALFRED SUTER, who recently appointed R. L. Sjostrom & Co., Lawrence, Mass., as sole New England representative for the sale of finishing machinery manufactured by H. Krantz & Sons, Germany, is visiting Europe to contact the Krantz concern and others who have brought out new textile developments.

ROBERT GAIR CO., INC., New York, will hereafter continue its fiber shipping case business and the fiber-board business of the Bogota Paper & Board Co., through a subsidiary company, the Bogota Paper & Board Corp. under the management of F. G. Becker, president.

DR. FREDERIC W. MURPHY has been appointed director of the newly organized department of applied research of the American Maize-Products Co., New York, makers of starches, dextrins, sugars, etc.

MATERIALS HANDLING INSTITUTE, New York, as the result of a prize contest, has adopted the slogan "Move Materials Mechanically—at a Profit." This has been incorporated into a trade-mark seal.

FRANK G. NORTH, INC., a new company for the manufacture and distribution of sizing and finishing compounds, has been formed in Atlanta, Ga., by Frank G. North, Walter W. Greer and S. M. Smith. Mr. North will continue as president of the Atlanta Harness & Reed Co.

Beware of Gypsies!

Gypsies may be colorful but they may also be expensive.

TEXTILE WORLD has had occasion several times in past years to warn its readers against roving bands of coppersmiths who solicit repair jobs from textile mills at prohibitive prices—with poor workmanship thrown into the bargain.

The latest case to come to our attention involved re-tinning of eight extractor baskets. The gypsies quoted $200 per basket and offered to do one free of charge, providing the mill in question gave them the rest of the work to perform. The proposition was accepted and one basket was given them to work on.

Meanwhile, communication with the manufacturer of the extractors brought out the fact that the latter would do the job at $100 to $125 per basket, depending upon size. Furthermore, examination of the one basket re-tinned by the gypsies showed that it had not been taken apart; the tin had been brushed on with the application of heat, with the basket completely assembled. This procedure tends to anneal the copper covering on the basket bottom as well as the perforated copper side-sheet. These serious defects would show up later during the use of the extractor. In this case, the mill now has a law-suit on its hands for refusing to give the balance of the work to the gypsies.

So once more: Beware of gypsies!

VEEDER-ROOT, INC., Hartford, Conn., gave a "total eclipse" party at the Amesbury (Mass.) Country Club, and its 700 friends were fortunate in having a perfect view of the eclipse unobscured by clouds. The guests were welcomed by Graham Anthony, John H. Chaplin and A. E. Kallinich of Veeder-Root, Inc., and were provided with every facility for comfort and enjoyment.

HAROLD T. BUCK, who has been connected with the Charlotte (N. C.) office of Arnold, Hoffman & Co., has been promoted to manager of the Atlanta (Ga.) office of that company in charge of the Georgia and Alabama territory. R. E. Buck, Jr., is in charge of the Greenville (S. C.)) office.

E. H. JACOBS MFG. CO. and the GENERAL SUPPLY CO., both of Danielson, Conn., have consolidated their manufacturing and merchandising interests in the field of textile loom supplies. W. Irving Bullard vice-president of the Central Republic Bank & Trust Co. of Chicago, is treasurer of the E. H. Jacobs Mfg. Co. He was for many years treasurer of the National Association of Cotton Manufacturers. Luther Pilling, treasurer of General Supply Co., will be actively associated with Mr. Bullard and his son Edward Jacobs Bullard.

A. M. SMYRE MILLS has lately installed the improved Breton Minerol process equipment for spraying cotton. Borne Scrymser Co., New York, is the originator of the process.

INDUSTRY-WIDE EVENTS

Expect Large Attendance at Greenville Show

Thousands of automobiles from the cotton manufacturing States will be driven to the Southern Textile Exposition at Greenville in October, judging by the number of applications received at Exposition headquarters for parking privilege tags. Applications come largely from Virginia, North Carolina, Georgia, Alabama, and Tennessee, with some from Arkansas and Texas. The prospects for attendance equal those of any previous show.

The prevailing colors to be used in decorating Textile Hall this year will be yellow and light violet. There will be festoons of southern-made cloth in these shades, relieved at intervals by decorative designs in green. The Annex will be decorated with cloth of similar shades, but with a mixture of orange.

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Dramatic Decline in Textile Foreign Trade

Both exports and imports of the principal textile manufactures declined 32% during the first six months of this year, as against the same period last year. Extending the comparison to the first half of 1929, the decrease was 68% in exports and 74% in imports. The following table gives details for the last four years:

(In thousands of dollars)

	Six Months Ended June			
	1929	1930	1931	1932
EXPORTS				
Mfres. of				
Cotton...	$60,425	$41,544	$27,368	$20,705
Wool....	2,880	2,351	1,590	397
Silk.....	10,418	8,207	6,010	2,448
Rayon...	3,960	3,415	2,166	1,573
	$77,683	$55,517	$37,134	$25,123
IMPORTS				
Mfres. of				
Cotton...	$32,085	$23,810	$17,439	$14,409
Wool....	31,553	19,007	8,961	5,552
Silk.....	18,789	11,594	6,831	3,121
Rayon...	10,424	5,961	2,600	1,192
	$92,851	$60,372	$35,831	$24,274

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Retailers Urged to Anticipate Requirements

In the realization that most of the textile improvement has been in the primary markets and that its maintenance depends upon extension to retail outlets, plans have been discussed whereby retail merchants might be induced to anticipate now their requirements through the year-end holiday season.

This suggestion was made by Stillwater Worsted Mills in an advertisement on Aug. 26. It was pointed out that steady employment for mill workers through the fall would thus be assured, and that, with earnings in hand, there would be a ready and confident purchasing power for goods of every description.

The idea has been developed further by Carl P. Dennett, chairman of the banking and industrial committee of the Boston Federal Reserve District, who stated on Sept. 2 that his committee would take up with the retail trade board a suggestion that retailers generally estimate their merchandise requirements through the Christmas holiday period and place orders for 60% of the goods.

It is believed that the proposition will be considered throughout the country.

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Activity Stepped Up

Never has there been such a deluge of news items concerning mills that have resumed operations after being shut down for various periods or mills that have stepped up production schedules markedly. Not only is textile business better, but it is the "Big" news of the day.

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Textile Employment Gains

Commercial Investment Trust reports that a survey made of some of the larger mills factoring through its subsidiaries showed a 20% increase in employment between July 1 and Aug. 12.

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Only One Drawback

When the National Inventors' Congress met in Portland, Ore., recently, the members from all parts of the country were asked to consider the clothing work by the "Spruce Girls," of Hoquiam, Wash., who wore bathing suits and other garments fashioned entirely out of spruce veneer. The garments were said to be striking to view; they had one drawback—splinters.

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To Address Safety Congress

Among the speakers who will address the Annual Safety Congress, which will be held in Washington, Oct. 3 to 7, are the following: J. Foster Smith, agent of the Pequot Mills, Salem, Mass.; H. A. Spears, employment manager of the Warwick (R.I.) Mills; M. W. Heiss, employment manager of the Proximity Mfg. Co., Greensboro, S. C.

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Government Specialists to be "At Home"

Cuts in the travel money available to Government specialists will mean that many representatives of groups interested in work the executive establishment is doing will have to journey to Washington if there is any conferring to be done. Washington expects the development to clinch its title as the biggest conference city of the nation, but the specialists would probably be glad to exchange the title for a few trips.

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Textile Courses at Columbia University

Two textile courses for the coming season at Columbia University, New York, have been announced by Herbert R. Mauersberger. Mr. Mauersberger's first course, on the manufacture, weaving and converting of rayon and other synthetic yarns and piece goods will begin Sept. 29, and will comprise fifteen lectures, on Thursdays, 7:30 to 9:20 p.m. The second course, on spinning and weaving of cotton yarns and gray goods will begin Sept. 30 and will comprise fifteen lectures on Friday evenings, same hours.

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Jacquard Installed by State Textile School

A jacquard head for the new plush loom recently installed at the Textile School of North Carolina State College has been presented to the school by Thomas Halton's Sons, Philadelphia. The loom itself, an importation from Germany, was the gift of A. W. Buhlman of New York. The installation will enable students to receive practical instruction in the weaving of fancy plush fabrics.

Textile Calendar

National Association of Cotton Manufacturers, annual meeting, Copley-Plaza Hotel, Boston, Sept. 29, 1932.

Annual Safety Congress, Textile section, Washington, D. C., Oct. 3 to 7, 1932.

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 17 to 22, 1932.

American Society of Mechanical Engineers, Textile Division, Greenville, S. C., Oct. 19, 1932.

American Cotton Manufacturers' Association, autumn meeting of board of government, Greenville, S. C., Oct. 20, 1932.

Southern Textile Association, semi-annual meeting, Greenville, S. C., Oct. 21, 1932.

Tenth National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, Dec. 5 to 10 1932.

American Society of Mechanical Engineers, annual meeting, New York, during week Dec. 5 to 10, 1932.

Silk Association of America, annual dinner, New York, January, 1933.

Fourteenth Exposition of Chemical Industries, Grand Central Palace, New York, Feb. 27 to Mar. 4, 1933.

TEXTILE WORLD'S

Cotton Digest

SOME people may regard the recent improvement as a broad, national development, but the cotton industry thinks of it as its private show. Certainly, it has furnished a good share of the fireworks—and more than once has stolen Page 1 from the security market.

At any rate, the rise in raw cotton prices, the remarkable expansion in sales of cotton goods, and the complete change of tone throughout the market, have represented one of the most spectacular transformations in the history of the trade.

Continuation of the improvement, of course, depends upon the development of demand from ultimate consumers. The best way to hasten that development is through sane price policies which will convince consumers that now is the time to buy. Irrespective of future raw material fluctuations, the era of profitless or losing operations should now be past history.

Sloan Much Encouraged on Return from Abroad

Encouragement over the improved tone abroad and the changed outlook in this country was expressed by George A. Sloan, president of the Cotton-Textile Institute, when he returned Sept. 3 from a vacation in Europe.

He found conditions abroad much more favorable than he had expected, and noted that other countries had attached more significance to such developments as the result of the Lausanne conference and the marked pick-up in Italy, than had we in this country.

Naturally, he was much pleased to note on his return that cotton textiles had been a leader in the improvement here. Manufacturers had it coming to them, he said, as they had done a magnificent job of production-control over a period of years. He sounded a note of caution, however, when he said that cotton mill executives would make a great mistake if they closed their eyes to whether or not goods being sold in primary markets were actually being consumed down the line.

While abroad, Mr. Sloan visited Germany, Holland, Italy, France and Switzerland—and found Italy busier than any other country.

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Strikes Continue in N. C.

North Carolina continues as the scene of labor disturbances inspired by the partly successful strike of hosiery workers at High Point. The first break in 97 years of industrial peace at Rockingham, N. C., occurred Aug. 23, when 750 operatives of Hannah Pickett Mills No. 1 declared themselves to be on strike. W. B. Cole, president and treasurer of the mills, had announced that the plants would be closed Monday, Aug. 22, for an indefinite period. Subsequent agitation led to the closing down of Hannah Pickett Mills No. 2 and the three plants of Entwistle Mfg. Co.

Another echo of the High Point strike was heard at Thomasville, N. C., six miles away, when 400 operatives of the Amazon Cotton Mills, a 20,000-spindle yarn producing unit, walked out in protest against a wage reduction. It was estimated that 1,600 textile workers in North Carolina were idle as the result of strikes.

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Progress Made in Red Cross Cotton Deal

Although not all the difficulties attendant to handling the 500,000 bales of cotton voted to the Red Cross from the Farm Board stocks have been worked out to the satisfaction of the trade, definite progress has been made as evidenced by the fact that orders for more than 2,000,000 yards had been placed with mills up to Aug. 27. It is estimated that two-thirds of the cotton will be required to pay the cost of manufacturing the cloth, freight, etc. There is talk of a further donation of cotton when Congress meets.

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Louis W. Clark Dies

Louis Wells Clark, vice-president and general manager of the Carolina Cotton & Woolen Mills Co., Spray, N. C., who died suddenly at his home Aug. 19, was endowed with those splendid qualities of character and human understanding, together with an abundance of enthusiasm, that combine to produce leaders of men. His practical philosophy, particularly as it related to the responsibility of management to its workers, was an example for industrial executives.

Mr. Clark was born in Boston, Nov. 6, 1870, and was a graduate of the textile department of the Massachusetts Institute of Technology. His first manufacturing experience was with the Cone group of mills at Greensboro, N. C. In 1900, he accepted a position at Spray, and later was promoted to manager of the American Warehouse and the Spray Bleachery. He was appointed general manager of all the Carolina Cotton & Woolen Mills Co. plants at Spray and Draper in 1919.

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Uniform Sale Contract Adopted by Spinners

Spinners of combed yarns, meeting at Gastonia, N. C., Aug. 29, adopted a sales contract form which will come into general use in that branch of the industry immediately. The accepted contract form, in addition to the customary provisions relating to "fires, strikes and acts of God," contains the following specific conditions:

(1) Any complaint must be made in writing within 10 days after receipt of the goods by the purchaser and before the same have been used. The mill has the privilege of replacing within a reasonable time any material not complying with this contract.

(2) All specifications of quality, quantity, measurement, count and weight are approximate and in accordance with the custom of the trade.

(3) If shipments are changed, delayed or decreased at the request of the buyer, or suspended by the seller because of nonpayment of overdue bills, either on this or any other contract, it is agreed that such change or suspension shall not affect the validity of this contract. The seller may delay or refuse to make any shipment until all previous shipments have been fully paid for and may at any time require security for payment prior to making any shipment if, in the seller's opinion, the circumstances justify it.

(4) Delay or failure to deliver any portion of this order shall not constitute a default as to any balance due for future delivery.

(5) Merchandise owned by the buyer and held by the seller for whatever reasons is at the buyer's risk. The mill, however, carries fire insurance policies, and in case of loss by fire equitable adjustment will be made out of the insurance received pro rata with all goods damaged but the mill makes no representations and assumes no responsibility for insufficient insurance or any fault or neglect or other reason.

(6) The failure of the seller to take advantage of any instance, or any of its rights hereunder, shall not be a waiver in any subsequent instance.

(7) Where privilege of other counts is given, notice must be given by the buyer two weeks before required delivery date, specifying changes desired. Otherwise it will be understood that the count of original sale will be delivered.

Cotton Goods Balance "Major Accomplishment"

Although July statistics may seem pretty stale after the exciting days of August, those on cotton goods still look good. July sales were 222,616,000 yd., or 157.1% of production, which was 141,673,000 yd. Shipments were 116.9% of production. Stocks were decreased 7.8% during the month, to 281,249,000 yd., and unfilled orders increased 33.4% during the same period to a total of 227,952,000 yd. on July 31.

The Association of Cotton Textile Merchants, which compiles and releases these statistics, calls the July sales picture a major accomplishment in supply and demand adjustment.

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Cotton Price Comparisons

The following are prices of key items in the cotton industry:

	Sept. 1	Aug. 1	—Sept. 1— 1931	1930
Spot Cotton, N.Y....	8.30	6.05	6.95	11.30
Ditto, high previous month.....	9.20	6.07	8.15	13.15
Ditto, low previous month.....	5.90	5.75	6.50	11.00
Peeler Comber.....	7.8c	6c	5½c	9½c
White Spooler Waste.	5c	4c	5c	8½c
10s frame spun yarn..	18½c	12c	14½c	20½c
10s/2 carded skeins. .	18 c	12 c	15½c	21½c
20s/2 carded peeler warps.....	20½c	14 c	16½c	22½c
60s/2 combed peeler warps.....	46 c	35 c	49½c	56½c
60s/2 mercerized cones	55 c	55 c	63 c	73c
37-in., 3-yd. drill.....	6 c	4¾c	5¾c	8c
38½-in. 64x60s.....	4¾c	3½c	4½c	5½c
36-in. 4-yd. 56x60s...	5 c	3½c	4¾c	6½c
Denim, 2.20s.....	10½c	8c	11c	12½c

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A. A. Shuford Dies

A. Alex Shuford, 53 years of age, prominent textile executive of Hickory, N. C., died of a heart attack while surf-bathing at Virginia Beach, Va., Sept. 3. He was president and treasurer of the A. A. Shuford Mill Co., Hickory, N. C., Granite Falls (S. C.) Mfg. Co., and the Granite Cordage Co., of Granite Falls, N. C., and secretary and treasurer of the Highland Cordage Co., of Hickory.

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Loan Should Strengthen Cotton Price

Consent of the Federal Farm Board and the American Cotton Cooperative Association to accept a loan of $50,000,000 from the Reconstruction Finance Corporation to hold old cotton off the market until next year is expected to help the price of this season's crop.

Formal announcement did not mention the exact amount of the loan, the interest rate or the quantity of cotton to be withheld but the R.F.C. had offered $15,000,000 to the Stabilization Corp. and $35,000,000 to the central selling agency for the State cooperatives on security of $25 a bale. It is understood that the agreement as finally concluded involves 500,000 bales held by the Stabilization Corp. and 1,400,000 owned by the A.C.C.A. The Stabilization Corp. will immediately withdraw from sale until March 1 next all stocks remaining of the 650,000 bales it proposed to market by July 31 next year, with the exception of small quantities now on consignment in foreign countries and such cotton as may be sold at 12 cents or more based on the near month of the N. Y. Cotton Exchange. The American Cotton Cooperative Association will maintain its present stocks of the 1930 crop until July 31, with similar exceptions for sales at the above prices.

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Crop Estimate Bearish

Government crop report of Sept. 8 estimated cotton production of 11,310,000 bales, as compared with previous estimate of 11,306,000 bales. The estimate was higher than expected and December cotton closed at 8.05c., a net loss of 120 points.

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Cotton Mill News

Lowe Mfg. Co., Huntsville, Ala. Sale of the physical properties of this company, now bankrupt, originally scheduled for Sept. 6, has been postponed until Nov. 10, by order of Federal Judge W. I. Grubb.

Glenn Mfg. Co., Lincolnton, N. C., has been incorporated with authorized capital stock of $100,000, by W. W. Glenn, Edgar Love and C. R. Jonas. It is reported that the new company will acquire and operate the plant of the Melville Mfg. Co., which was recently sold by the receiver, W. W. Glenn.

Appleton Co., Anderson, S. C., has begun an expansion and improvement program at mill, including extensions in power plant and installation of boilers, stokers and other equipment. Work is estimated to cost about $75,000, with machinery. J. E. Sirrine & Co., Greenville, S. C., are engineers.

Toulson Yarns, Inc., Stratford, Conn., has been taken over by the Clifton Yarn Mills, Clifton Heights, Pa., following bankruptcy proceedings and the mill, closed for two months, has been reopened with 50 operatives. Harry and Thomas Toulson are in charge of operations for the Clifton concern.

Avondale Mills, Birmingham, Ala., recently purchased two 180-spindle automatic spoolers from the Barber-Colman Co., Rockford, Ill.

Caswell Cotton Mills, Inc., Kinston, N. C., was offered for sale by the receiver, F. C. Dunn, on Aug. 1, but the only bid ($21,000) was not satisfactory and sale was not confirmed.

Statesville (N. C.) Cotton Mills, manufacturers of colored weaving and knitting yarns, have appointed Thomas B. Bradley, formerly representative of the Newnan Cotton Mills, as manager of their New York office. John Blackburne, who has had 15 years in the yarn trade, has been appointed Pennsylvania representative.

Eton Mill Co., Shelby, N. C., has been organized by J. R. Dover, Jr., Fred R. Morgan and Associates, to acquire and operate the plant of the Eastside Mfg. Co., which was recently sold at a receiver's sale for $260,000.

Southern Mills Corp., Oxford, Ala., mop yarns, etc., has completed installation of knitting machinery for production of automobile polishing cloth. This company has lately spent $50,000 in new equipment and improvements.

Bates Mfg. Co., Lewiston, Me., has concluded negotiations for the purchase of the mill of the Monadnock Mills, Claremont, N. H., for a consideration of about $150,000.

Pepperell Mfg. Co., Boston, Mass., according to the preliminary balance sheet as of June 30, 1932, suffered an operating loss of approximately $1,200,000 for the fiscal year ended on that date, exclusive of inventory adjustments amounting to about $750,000.

Pacific Mills, Boston, Mass., for the six months ended June 30, show net loss of $2,645,907, after depreciation, interest and inventory adjustments, as compared with net loss of $696,050 for the corresponding period last year. Sales declined in dollar volume from $19,189,283 for the six months ended June 30, 1931, to $10,210,796 in 1932.

Victor-Monaghan Co., Greenville, S. C., showed net profit of $146,946 for year ended June 30, after deductions for interest and depreciation, as compared with a net loss of $234,070, after all charges, for the previous fiscal year.

TEXTILE WORLD'S

Wool Digest

"TODAY'S values are far below replacement cost," says the Woolen Corp. of America.

"Recent wool prices may not be regarded as a legitimate basis for operations," says the Stillwater Worsted Mills.

A down-trend in sheep and wool production in the Western States is in prospect for the next few years, says the Bureau of Agricultural Economics.

They can't all be wrong.

Of course, no one resents the larger volume of business which has been current. The situation has been increasingly encouraging—but the strength lay largely in the shortage of goods and in the increased demand. The price factor was something else again.

The answer is: Weavers should adhere strictly to the policy of producing against orders only. Such a policy, if maintained long enough, could create a seller's market; the least it could do would be to establish prices at levels offering a decent return to the industry and its workers.

Riverside Enters Wool Goods Field

Extension of the lines of the Riverside & Dan River Cotton Mills, Danville, Va., to include worsted goods became known Aug. 29, with the announcement that Fred K. Nixon, selling agent for the Worumbo Co., would resign his present post to take charge of the Riverside company's new department. The decision of the Riverside and Dan River firm followed months of experimentation in developing cotton-worsted mixtures in men's suitings and it is also understood that the company may include women's cotton-worsted mixtures. The company may later decide to produce all-worsteds.

The news was received with much interest in both the wool goods and cotton divisions, as the Riverside and Dan River company is among the largest cotton goods firms in the country, having 15,000 looms.

Mr. Nixon is a prominent figure in the selling end of the wool goods trade, and has been selling agent for Worumbo for six years, prior to which he had a broad background including service with such firms as U. S. Worsted Co., Nixon, Walker & Tracy, American Woolen Co. and Samuel Hird & Sons. E. A. Dafter formerly with Terhune, Yereance & Wolff, will assist Mr. Nixon.

•

A. W. Noone Dies

Albert Wellington Noone, president of the Joseph Noone Sons Co., Peterboro, N. H., died Aug. 15, aged 86 years. Mr. Noone was born in Peterboro and spent a lifetime of service with his company and to his city. He was always close to civic affairs and enjoyed unusual popularity. Two years age Mr. Noone ran for two offices on the Democratic ticket, Senator and Governor, in the same election. He served as a delegate to the Baltimore convention which nominated Woodrow Wilson for president and held numerous local offices. He was prominently known throughout the textile industry and was actively engaged until recently in the company founded by his father in 1831 and now under the general managership of A. Erland Goyette. In 1926, when 80 years old, Mr. Noone became president of William R. Noone & Co., selling agents. He was a colorful and vigorous figure of a generation which is fast passing. At the time of his death he was president of the First National Bank of Peterboro, trustee of the Peterboro Savings Bank, and vice-president of the Federal Trust Co., Waterville, Me. He was member of the National Association of Wool Manufacturers and the National Association of Cotton Manufacturers. He was also active as a Mason and an Elk. His nearest surviving relatives are two nieces.

•

R.F.C. Plans Aid For Wool Growers

Further plans under which the Reconstruction Finance Corp. would extend aid to wool growers were reported to be nearing completion Aug. 22, following conferences at Washington between H. B. Embach, president of the National Wool Marketing Corp. and the directors of the finance corporation. It is understood Mr. Embach urged early functioning of the new credit corporations as being of particular importance to the wool growers of the western ranges States.

Conferences between officials of the Reconstruction Finance Corp. and several New England woolen and worsted manufacturers regarding production loans are also said to have been arranged.

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American Woolen Loss $6,794,962 for Six Months

Net loss of $6,794,962 for the first six months of 1932 is reported by the American Woolen Co. This compares with a loss of $1,809,446 for similar period in 1931. Despite the loss, the company continues in a strong financial position, the ratio of current assets to current liabilities being 131 to 1. The principal change in the balance sheet of June 30, 1932, as compared with Dec. 31, 1931, outside of the write-down in par value of common stock from $100 to $5, is in the inventory account which was $20,818,472 on Dec. 31, 1931, and $13,922,838 on June 30, 1932.

Opinion in the trade is that the American did not do badly from an operating standpoint, but that the decline in raw wool values of approximately 35% in the first six months of the year naturally had a serious effect upon inventories.

•

Sheep and Wool Production Show Down Trend

A downward trend in sheep and wool production in western sheep States the next few years is in prospect, says the Bureau of Agricultural Economics, U. S. Department of Agriculture, in an outlook report. Major factors in the indicated decline are a decrease of 8% in the lamb crop this year, and a closer marketing of lambs with the consequent effect on breeding stock.

The bureau believes that "wool consumption is likely to increase from present low levels," and adds that "an increase in wool consumption might precede a revival in general business, as it did in the year 1921."

•

Sharp Advances In Wool Tops

Wool top futures in the New York market were considerably more active through August, and a mid-month trend toward higher levels made traders optimistic regarding September prospects. While some of the gains were lost later, the fundamental sentiment was better, and the outlook was regarded as much more

promising. During the third week some future deliveries were up 4 to 6c. from the low point of the week previous, and on Aug. 26 prices advanced another three cents, followed by another 2½c. gain on Aug. 30. September delivery sold up to 52.00 against a low of 48.00 within the preceding fortnight and March delivery sold at 54.50 against 48.00. Wool Associates of the New York Cotton Exchange reported "a distinct broadening of both speculative and trade interest."

•

Boston Market Tone Stronger

A distinctly better tone characterized the Boston wool market at the end of August. Heavy buying at the beginning of the month was followed by some uncertainty and fluctuation of volume, but the impetus buoyed up confidence and the approach of fall found traders still optimistic regarding the outlook.

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Leary Takes Carpet Post

Herbert Gutterson, president of the Institute of Carpet Manufacturers of America, announced Aug. 22, the appointment of Arthur V. Leary, to administer certain plans and policies in connection with the institute's quality label program, which was described in the August issue of TEXTILE WORLD.

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Fabric Prices Show Upward Trend

Increased demand for wool goods brought a sharp firming and upward trend in prices. Levels advanced 10% approximately during the latter part of the month, this new level covering all leading lines and representing the most marked advance in wool goods prices in some years. The stronger position of raw wool strengthened the yarn market which in turn helped to support the upward turn of the fabric quotations. Market looked for continued strength.

Sanford mills offer scenic backgrounds in their automobile upholstery fabrics

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Seats of Men's Trousers a Statistical Index?

In New England there is a saying that a depression lasts as long as do the seats of men's trousers. The upturn in orders from retailers of clothing indicates to specialists at the Department of Commerce that the trousers' seats are about worn out. Apparently retailers are convinced that a large proportion of the population will have to find some way to get new fall clothing. Three winters of economizing have about cleaned up the clothing surplus that accumulated in the happy days when everyone, as a matter of course, had a new wardrobe with each change of season.

•

Price Trends in Wool

The following are prices of key items in the wool industry. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

	Sept. 1	Aug. 1	Sept. 1 1931	Sept. 1 1930
Fine and fine med. territory	$0.41	$0.34	$0.57½	$0.71
Ohio ⅜s	.18¾	.14¼	.23½	.29½
Tops, fine, 64-66s	.62½	.51	.86	.94
Average ⅜s	.50	.43	.64	.81½
High ¼	.44	.37	.54	.71
Noils, fine	.37	.37	.39	.58½
¼	.25	.25	.32	.45
2-40s 60s wstd yarn	.91	.85	1.20	1.46
3192 serge	.....	1.35	1.65	1.90

•

Samples by the Carload

Three solid carloads of samples of blankets were recently shipped by the Chatham Mfg. Co., Winston-Salem, N. C., to Montgomery Ward & Co., Chicago, Ill. These swatches of Chatham blankets will be mailed with the mail order firm's new catalogs.

WOOL IN THIS ISSUE

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Wool Mill News

BROWN MILL, of the American Woolen Co., Dover-Foxcroft, Me., has installed electric motors to meet the mill's power needs when Piscataquis river is low.

AMERICAN WOOLEN CO., auctioned 16 houses and seven tracts of land at Waterford Village, at the Rhode Island-Massachusetts State line on Aug. 19. The sale netted $13,615. The company also sold 14 dwellings and seven tracts of land in Franklin, Mass., which brought $23,530. It also sold 40 buildings and 80 plots of land at Moosup, Conn., Aug. 17, for $59,300.

KEZAR FALLS (Me.) WOOLEN MILLS, is erecting an addition and building a new dam across the Great Ossippee River.

EMPIRE WORSTED MILLS, Jamestown, N. Y., is to be reorganized under the same firm name. Stockholders will hold a special meeting in September to vote on proposal to reorganize the firm.

NEW ENGLAND WOOLEN MILLS CO., INC., has been incorporated in Norwich, Conn., with capital stock of $50,000.

EASTERN TEXTILES, LTD., have acquired and reopened the Kerr & Lynch woolen mill at Eureka, N. S., Canada, shut down since 1928. Considerable new equipment has been installed.

PEERLESS WOOLEN MILLS, Rossville, Ga., men's wear and blankets, have placed an order with Johnson & Bassett, Inc., Worcester, Mass., for installation of new wool spinning machinery.

GONIC MFG. CO., Rochester, N. H., has announced a 10% increase in wages effective at once. Harry H. Meader, superintendent, states improved conditions warrant the increase. The company employs 500.

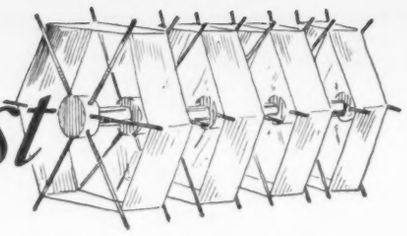
G. J. GORDON has been appointed receiver for the E. P. BARBER MFG. CO., East Lyme, Conn., men's woolen wear.

WOOD RIVER WOOLEN CO., INC., Hope Valley, R. I., has been incorporated with $25,000 to operate the Mystic Mill. William H. Kennedy, Stonington, Conn., William T. Prince and William H. Hopwood are the incorporators.

AMERICAN MILLS CO., Rockville, Conn., fine worsteds and woolens, a division of HOCKANUM MILLS CO., has started work on construction of a 20x42 ft. addition to the mill's dye-house.

TEXTILE WORLD'S

Silk Digest



THE present would seem to be the psychological time for the proposed silk promotional campaign. The advance in raw silk prices has infused new life into the industry. The move toward emphasis on quality merchandise offers another inducement.

Silk goods, in common with most textiles, have lost prestige during the recent quality-debasement era. The sooner manufacturers start attempting to regain that prestige, the better. A sound promotional campaign is one effective means toward that end.

The problems involved are complex. The financing of such a move, embracing as it does more than one country, is not a simple matter. The administration of the plan, in a manner which will please all groups, will also prove to be troublesome. However, in the Silk Association of America the industry has a type of leadership which should assure a united front in this country at least.

Pile Fabric Mills Form Velvet Guild

With the aim of winning the public back to appreciation of quality in apparel velvets, five leading manufacturers of this line met in New York in August and organized a new association to be known as the Velvet Guild. The movement was instituted by Herbert H. Schell vice-president and general manager of Sidney Blumenthal & Co., and the other four firms in the guild are: Cheney Bros., J. M. Langenieux & Son, J. B. Martin, for whom L. & E. Stirn are selling agents, and Wm. Openhym & Sons.

The guild plans to originate a trademark or emblem which will be used only on velvets of the highest quality. No technical standards of manufacture will be fixed, according to present plans: all fabrics for which emblem rights are sought, will be submitted to the membership as a whole, and the fabrics will be passed upon by vote.

The officers of the guild are: Mr. Schell, president, Ward Cheney, of Cheney Bros., vice-president and F. R. Wheeler, of Wm. Openhym & Sons, secretary-treasurer. A board of directors also was elected as follows: Mr. Schell, chairman; Ward Cheney, F. R. Wheeler, J. M. Langenieux and R. H. Gillespie, of L. & E. Stirn Co.

Mr. Schell explained the function of the new body in the following statement:

"The chief purpose of the guild is to create an emblem which will be assigned only to velvet fabrics deserving such distinction because of their high quality. Members who are given the privilege of using the label will promote it actively in their advertising, stressing the quality as established by the label. For the present, the guild itself does not plan any promotional work.

"We formed this body to offset the 'price' emphasis. We want velvets to remain a high quality line, and we must have full consumer appreciation of quality to achieve that purpose. At present, the public is sadly lacking in proper recognition of quality in this as in other fields."

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Silk Skyrockets; Japan Suspends Trading

Sensational gains made in raw silk prices through August brought about such a violent condition in Japan that, on Aug. 29, the Yokohama and Kobe Bourses suspended all trading soon after opening. New York importers later expressed the opinion that this action was taken to prevent a technical corner in the nearby positions. As reviewed in detail on page 93 of this issue, raw silk started on the uptrend at the beginning of August and, excepting occasional minor recessions, continued its rise throughout the month, making gains estimated as high as 65c. on key numbers.

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Rail Shipments Gain

A huge banner reading, "Happy Days Are Here Again," extended along the top of a Union Pacific special train of 18 cars shunted onto the tracks at Smith Cove Pier 41, Seattle, Wash., Aug. 9, as the American Mail liner "President Madison," laden with 4,700 bales of raw silk, the largest shipment to be routed via Seattle in three years, arrived from the Far East. The banner, 20 ft. long and 3 ft. wide, also read: "Largest shipment of raw silk since 1929. Japan to New York via Seattle. American Mail Line, Union Pacific Railway." Lower cost of transportation by water through the Panama Canal, within a period of less than three years, diverted about 85% of the tonnage to the water lines. Pacific coast interests, in cooperation with the Silk Association, prevailed on the transcontinental railroads last December to reduce their rates in order to more nearly equalize the lower rates and slower service of the all-water route. The water-rail rate was reduced from $12 to $9 per 100 lb. which compares with the all-water rate of $6. In December, 1931, before the reduction became effective, the rail lines handled only 13.7% of the total imports. During the first six months of this year they handled 30% of the total imports. In July and August the upturn was even sharper.

•

Throwsters Vote for Permanent Institute

Members of the Throwsters Research Institute have voted to continue that organization on a permanent basis, it was announced in late August by Dean Hill, executive secretary of the institute. When the institute was formed last winter, it was agreed by members that it should function for a trial period of six months. Shortly before Aug. 1, when that period was to expire, a vote was taken on the question of continuance. The poll indicated general belief that the organization was a success and that it filled a definite need in the throwing industry. Mr. Hill also announced that the Board of Governors of the institute, at a meeting in July, decided that membership would be selective; conforming to this policy the institute refused to permit renewal of membership to several firms. The executive secretary added that weekly mill receipts reported by membership continued to show increased volume.

•

Two Broadsilk Bodies Merge

Plans for the development of a new association of broadsilk manufacturers crystallized in the Paterson, N. J., silk area, during August, following the decision of the recently formed Association of Silk Manufacturers to consolidate with the Broadsilk Manufacturers' Association. The new body, which is to be known as the Broadsilk Association of Paterson, also hopes to organize the silk manufacturers of Allentown, Pa., and if successful in this plan, to broaden into a national association. The

association, as planned at present, has two divisions, one for firms weaving their own goods and another for commission weavers.

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Mills Oppose Paying For Retailers' Ads

The decisive gains achieved by the silk industry during August both as regards raw silk prices and the active profitable movement of fall fabric lines, has influenced numerous silk mills to give attention to various ills which hitherto they had to suffer in silence because of the depression. One practice which interest centered on at the end of August, was the payment by weavers of retailers' advertising costs in cases where the manufacturer's fabrics are promoted. Numerous silk firms feel that this custom is unfair and should be abolished, and there were indications that if the present strong market continues, manufacturers will be in a position to insist that retailers bear these advertising costs themselves.

•

August Silk Takings Large

Raw silk imports during August, 1932, at 61,412 bales were 5% higher than during August, 1931, the Silk Association reports. Deliveries to mills at 59,905 bales showed an increase of 29%, and were the largest month's takings since October, 1930. Stocks at warehouses on Aug. 31, 1932, were 52,228 bales compared with 41,878 bales on Aug. 31, 1931.

•

Wages Increased

Southern Silk Mills, Greensboro and Kernersville, N. C., with orders in hand to provide full time operation until after Oct. 1, inaugurated wage increases ranging from 10% to 12%, effective Aug. 15. The two plants employ approximately 225 workers.

The Stehli Silk Mills plant at Waynesboro, Va., effective August 15, announced a 10% increase in pay of piece-workers.

•

Organize Style Studio

Colortone Studio has recently been organized and is located in Philadelphia with sales headquarters at 19 West 34th Street, New York. Gladys E. Eisenhardt is president, Dorothy B. Street, vice-president, and Olive M. Brown, secretary. This new studio is specializing in designs for printed silks and cottons, and an associate, Laura Blayney, is permanent representative in Paris.

•

Greige Goods Prices Rise 10 to 20%

Prices of silk goods in the greige registered a sharp upturn in early August, some firms advancing their prices from 10 to 20%. The gain was subject to some recessions during the month, but the trend was consistently upward. The strengthening influence was attributed chiefly to shortage of wanted constructions, as a result of curtailed production earlier in the year. The better tone is most noticeable among novelty fabrics; some firms reported having considerable stocks of staples which they had difficulty in moving.

•

Silk Price Tables

The following prices of key items reflect the upward trend in silk quotations. A slight decline marked the first week of September in thrown silk sending tram 85% down to $2.55:

	Sept. 1	Aug. 1	Sept. 1 1931	Sept. 1 1930
Crack XX 13/15 white 78%	$2.02	$1.45	$2.60	$3.30
Tram, 5 thd Japan 85%	2.65	2.15	3.70	4.25
Crepe 3-4thd 14½16 Bob	2.00	1.85	2.65	2.80
60s-2, spun silk	2.85	2.85	3.45	4.00

•

Silk Mill News

DUPLAN SILK CORP. reports for the year ending May 31, 1932, a net profit of $20,203, after all charges, against a net profit of $71,299 in the preceding year. It was stated in the market that this is the first important silk company among those reporting, to show a profit in 1932.

FRANK IX & SONS, INC., Charlottesville, Va., have plans for an addition to mill on Ware Street, estimated to cost over $50,000, with equipment. It is expected to break ground in September. E. E. Burruss, Charlottesville, Va., is engineer and architect.

S. & R. SILK MILLS, INC., Charlottesville, Va., formerly owned by Schepp & Rosenthal, Inc., has been reopened by William J. Schepp, former president, under the firm name of William J. Schepp, Inc., operating 200 looms on georgette and other crepes.

GRITMAN THROWING CORP., with headquarters at Danville, Pa., has acquired at Berwick, Watsontown, Liverpool, Millville, Towanda and Danville, Pa., the mills which formerly constituted the property of the Universal-Industrial Corp., bankrupt. President of the new company J. Harley Gritman. Sales representatives will be Earl F. Croasdale and Walter W. Patten, 274 Madison Ave., New York.

BURLINGTON (N. C.) MILLS CO., one of the J. Spencer Love group of mills, has leased for three years the plant formerly operated by the KLOTZ SILK MFG. CO., at Reidsville, N. C.

ALEXANDER S. CYCAN has taken over the former Burns Mfg. Co. lace mill in Middletown, Conn., and will produce broad silk. Forty-four looms and other equipment have been installed.

SUSQUEHANNA SILK MILLS receivership has been made permanent by Federal Judge Patterson. Receivers Henry Schniewind, Jr. and the Irving Trust Co. are authorized to continue the business 90 days pending reorganization.

M. E. BINZ SILK CO. of Danville, Que., has been incorporated with a capitalization of $30,000. The manager, M. E. Binz, announced that suitable mill building and the necessary machinery will be secured shorty.

H. R. MALLINSON & CO. reports a consolidated net loss of $249,846 after depreciation, factoring expense and interest, for the first half of the current year, against a net loss of $464,738 in the first half of the preceding year.

CENTURY RIBBON CO. and subsidiaries report a net loss of $25,420, after depreciation, Federal taxes and other charges, for six months ended June 30, 1932. This compares with a net profit of $102,015 in the first half of last year.

UNITED THROWING CO., Burlington, N. C., one of the J. Spencer Love group of mills, is installing 6,100 new Atwood twister spindles. An additional installation of more than 6,000 spindles has been purchased.

BELDING HEMINWAY CO., New York, reports that the first half of 1932 shows a net loss, after inventory write-down depreciation and interest, of $252,621 against a net loss of $207,493 in the corresponding period of 1931.

NATIONAL SILK CO., South Coventry, Conn., worsted boucle and novelty yarns, has started construction of a new boiler house.

MYERSTOWN (Pa.) TEXTILE CO., recently organized has taken over the plant of the old Myerstown Silk Co. and with Adam Pontz, former superintendent, again in charge, has resumed.

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TEXTILE WORLD'S

Rayon Digest

AFTER a succession of unwarranted price cuts, any price advance in rayon is front-page news.

The action taken last month on 75 and 100 deniers, and the later advances on a broader range of deniers, are not to be dismissed lightly.

It is true that they did not bring cash immediately into the pockets of producers, since considerable forward business had been booked prior to revision. However, the action strengthened the tone of the market. Following the spectacular volume of sales in August, the advances helped to place the industry in a strong position.

This question is broader than merely one of profit and loss. The future of the synthetic fiber industry depends upon technical and market research. That phase has necessarily been neglected in the last year or two. Not until funds are available for its resumption can one be really optimistic. And, unless there is some rayon "angel" with whom we are unacquainted, such funds must come out of profits.

Producers Oversold After Record Call

August was one of the most hectic months in the history of the rayon industry, the two chief features being a high pressure rush to buy yarn, and an upward trend in prices. Stocks of the finer deniers so far lagged behind orders that most producers were sold up solid to the end of the year; at the end of the month 150s were selling heavily through to November and producers were predicting a soldup condition on that denier also for the rest of the year.

The third week of August brought about a seller's market with customers having difficulty in getting their orders for the 75 and 100 denier accepted. The rush to buy developed suddenly at the start of the month, coming first from weavers who wanted finer deniers, and later from knitters who wanted chiefly the 150s.

•

Strong Demand Raises Yarn Prices

Higher price levels for the rayon industry were established during August when leading companies made announcements of a 5c. rise on 150s and 5 to 10c. advances on other sizes which were accepted as setting the level for trading. On Aug. 22, duPont Rayon Co. announced a 10c. advance on prices of 75 and 100 denier viscose process yarns, all kinds. This was the first advance in rayon yarn prices since 1927. The new prices follow:

Denier	Fil.	Skeins 1st	Skeins 2d	Weave Cones
75	30	$.90	$.85	$.95
100	40	.75	.70	.80

The duPont increase of finer denier prices was tallied in a statement by Tubize Chatillon Corp. Aug. 25, which also announced 5 to 10c. increases in the prices of numerous viscose and nitro process yarns, including 150s. The new Tubize prices follow:

Sanconize (Semi-dull-Nitro Cellulose)

Denier	Skeins 1st	Skeins 2d	Cones
50	$1.00	$0.90	$1.05
75	.90	.85	.95
100	.75	.70	.80
125	.65	.60	.70
Lustre, Semi-dull and Dull (Viscose Process)			
75	$0.90	$0.85	$0.95
100	.75	.70	.80
125	.65	.60	.70
150	.60	.57	.60
200	.55	.52	.55
300	.50	.47	.50

On Aug. 29, the Viscose Co. and the Industrial Rayon Corp. paralleled duPont's advance in a new price list which included the following key numbers:

Denier and Filament	Skeins 1st Quality	Skeins 2d Quality	Cones 1st Quality
75/18 and 30	$0.90	$0.87	$0.95
100/18 and 40	.75	.72	.80
125/36	.65	.62	.65
150/24 and 40	.60	.58	.60
200/30	.55	.53	.55
300/44 and 60	.47	.45	.47

Industrial also announced circular knit fabric prices, this being the first time in recent years quotations have been listed publicly in the fabric division. The price quoted on the circular knit underwear fabric of Industrial "Premier" yarn is 70c. per lb. which is 10c. higher than the base price for first quality 150 denier yarn.

On Aug. 30, American Enka Corp. and American Glanzstoff Corp. made public new lists at the higher levels. DuPont issued a supplementary list of Sept. 2 covering the complete list of sizes.

The Celanese Corp. announced price revisions on acetate yarns on Sept. 6. On 150, 170, 200 and 300 denier weaving yarns, prices were advanced 10c. per lb., while 120 denier was raised 5c. Prices on hosiery yarns were advanced 15c. on 120 and 150 denier; and 10c. on 100 denier.

•

Plan Men's Summer Suitings for 1933?

Reports to the effect that important progress has been made recently by rayon yarn companies in the development of summer suitings for men, were receiving credence in the market at the end of last month. While market extension activity among synthetic yarn houses has been handicapped during the depression period due to curtailment of expenditures, the rayon suitings field is understood to have been an exception to this rule. Interest in this possible outlet was stimulated during recent weeks by reports that creaseless rayon fabrics had been developed abroad.

•

Spinning Unripe Viscose

Rayon with a strength of more than 2 grams per denier is said to be produced by a new process patented (No. 361,760) in England by A. G. Farbenindustrie. The process consists of spinning viscose prepared from unripened alkali cellulose or from alkali cellulose which is ripened by a shorter period than normal, employing coagulating baths containing 10 to 30% of sulphuric acid and not les sthan 30% of ammonium sulphate.

•

"Rayon Week" in Germany, Oct. 1 to 7

Germany is to have a "Rayon Week" from Oct. 1 to 7, in order to make the population "rayon conscious," according to a report to the Commerce Department's textile division from the Berlin office. All towns of 30,000 and over will take part in the campaign to promote sales of all products consisting entirely or partly of rayon, the report stated.

•

Offers Dull Thread

Consistent with the trend toward dull luster fabrics in rayon underwear, Fremont Thread Co., has introduced a new dull luster sewing thread for use in the manufacture of the new low-luster

underwear lines. The thread is designed to operate on the covering needle on flat lock machines; it is put up in 200 denier, 300 denier and 450 denier sizes, and is made from Tubize Chatillon Corp.'s Chardonize yarn.

•

Rayon Exports Gain

Rayon exports from United States, though relatively small, have shown increase this year when shipments for first seven months exceeded any recorded 12-month period. Figures as reported by the Silk and Rayon Section, Textile Division, Bureau of Foreign & Domestic Commerce, follow:

Year	Pounds	Dollars
1932*	428,869	299,396
1931	313,790	270,700
1930	345,169	356,410
1929	223,289	286,358
1928	195,925	290,656
1927	400,617	754,055
1926	400,495	520,929
1925	147,948	290,025

*First seven months.

For the last three years Mexico has led among the takers of American rayon, and Cuba is now second.

•

Rayon Price Comparisons

The following are prices of pivotal rayon yarn numbers. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

Viscose Process	Sept. 1	Aug. 1	Sept. 1 1931	Sept. 1 1930
75 denier (18-30 fils).	$0.90	$0.80	$1.35	$1.65
100 denier (40 fils). . .	0.75	0.65	1.10	1.30
150 denier (40 fils). . .	0.60	.055	0.75	1.00
Acetate Process				
150 denier.	1.00	0.85	1.40	1.85
Cupra. Process				
150 denier (112 fils.) .	.....	0.80	1.10	.....
Nitro. Process				
150 denier	0.65	0.62	0.75	.95

•

Japan Pushes Plans For Rayon Exchange

Plans for the establismment of a rayon exchange on the compound of the Sampin Exchange of Osaka, Japan, were rapidly approaching completion, according to August reports. Promoters of the rayon exchange, the franchise for which was tentatively issued in June, have decided the qualifications for membership. Under the rules, each member of the exchange should own property of more than 100,000 yen.

Courtesy Acele Dept. of DuPont

Modern rug of acetate yarn made by Valdemar Boberman of Paris

•

Textiles, Inc., Run Spun Rayon Equipment Full

Textiles, Inc., Gastonia, N. C., designed several of its spinning mills about a year ago for the purpose of manufacturing spun rayon and blended rayon and wool varns. This group of mills, with production of 4,000,000 lb. annually of spun rayon, is now running full time.

Close attention has been given to style demands, and innovations in spinning and twisting have been introduced. These yarns are not only spun of 100% ravon, but, for heavier wear fabrics, are spun in combination with wool. Manv new and beautiful effects are apparent in goods woven from these yarns.

With the upturn in business the cotton spinning mills of Textiles, Inc., are showing marked improvement in production, and, if the present rate of increase continues, they will soon be running at capacity.

•

Furness Selling Yarn to More Mills

Furness Corp., Gloucester, N. J., is now selling its cuprammonium yarn to other manufacturers than Julius Kayser & Co., which previously took its entire production. The limited quantity of yarn available for such distribution is sold through Forrest Bros. on a basis of 80c. for 100 and $1.15 for 50 denier.

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Rayon Mill News

American Enka Corp., Enka, N. C., showed a net loss of $256,009, after all charges, for the fiscal year ended Jan. 3, 1932, as compared with a net loss of $674,372 for the previous fiscal year. Gross manufacturing profit for the last fiscal year amounted to $977,647, but selling and administrative expenses of $366,647 and depreciation charges of $987,914 more than offset this profit. The balance sheet showed current assets of $5,927,175 and current liabilities of $296,626.

Industrial Rayon Corp., Cleveland, Ohio, reported net loss of $292,461, after all charges, for the second quarter. The company showed net profit of $177,649 for the first three months of 1932, making the net loss for the six months $114,812, as compared with net profit of $64,862 for the first half of 1931. Deduction for the first half of this year include an inventory write-down of $250,000 and depreciation on plant and equipment of $393,558. The consolidated balance sheet, as of June 30, shows current assets of $5,395,714 and current liabilities of $540,853.

Carolina Rayon Mill, Burlington, N. C., may turn to the manufacture of synthetic wool if a sale of the properties, said to be pending, goes through. A. M. Johnson, owner of the plant, who is summering at his ranch home in Death Valley, Calif., has made no announcement of his intentions. Rumors that seemed to be based on reliable information indicate that a sale of the plant to a group of Ohio business men is pending. John S. Thomas, Burlington attorney, is said to represent them.

TEXTILE WORLD'S

Knit Goods Digest

IN any intelligent discussion of the problems of an industry, its methods of determining costs come under analysis. Consequently, it is logical that this subject is accorded a prominent place in the new program of the National Association of Hosiery and Underwear Manufacturers.

Earl Constantine, managing director, has announced that a simplified manual on the essentials of unit cost accounting is being developed by the association; and that arrangements will probably be worked out whereby members can be offered the services of experienced field men, on a low per diem fee plus expenses, to advise them on the subject of uniform cost accounting, and on the practical application of principles which the manual will present.

The following statement by Mr. Constantine is an editorial in itself:

"The association recognizes that all larger mills have installed unit cost accounting systems, and that most other mills either have systems or endeavor to establish their costs. On the other hand, the fact remains that in the hosiery industry as a whole there are not at present any generally accepted principles or methods, with the result that estimates of costs on a given article show a wide variety and range, and result in a wide range of prices quoted.

"It must be obvious that if the industry as a whole would accept certain basic and fundamental elements for its accounting, the result would be to its benefit."

Hosiery Council Clarifies Plans

Several steps taken during August by the advisory council of the National Association of Hosiery and Underwear Manufacturers, served substantially to clarify the plans for action on the various problems of the hosiery and underwear industry. William Meyer, president of the association, appointed an executive committee of the advisory council and this committee met Aug. 23, at the Waldorf Astoria Hotel, New York, at which numerous questions were considered, including machinery obsolescence, identification of sub-standard hose, and the wage problem. It was decided to study the machinery question further before taking action. The committee called two later meetings, one Aug. 30 of full-fashioned hosiery manufacturers and another Sept. 8 of seamless hosiery manufacturers.

The following were invited to serve on the executive committee: John Bromley, Quaker Hosiery Co.; W. W. Freschl, Holeproof Hosiery Co.; B. H. Guenther, Merrill Hosiery Co.; J. P. Holt, Aberfoyle Mfg. Co.; John Wyckoff Mettler, Interwoven Stocking Co.; Rufus W. Scott, Tubize Chatillon Corp.; Harry Swinglehurst, Scott & Williams; Ferdinand Thun, Berkshire Knitting Mills; Roy E. Tilles, Gotham Silk Hosiery Co., and H. L. Van Praag, Julius Kayser & Co.

•

Survey Shows Causes of "Two-Tone" Silk

Six chief causes of two-tone effects in hosiery, with practical suggestions for reducing or eliminating these effects, are cited in a report completed by the raw silk committee of the National Association of Hosiery and Underwear Manufacturers, it is announced by Earl Constantine, managing director.

The report lists six principal causes of two-tone, as follows: 1. Difference in nature or color of the silk; 2. Mixing in the same stocking silk which has either been thrown by two or more different plants, or been soaked by different treatments; 3. The use of silk that has been in storage for some time, with resulting oxidation of the soaking oils or of the silk itself; 4. Difference between the number of courses in the leg and in the foot; 5. Pronounced difference in twist; and 6. Difference in size of thread.

A subsequent statement by the National Association expressed thanks to numerous textile companies for their cooperation and help in the detailed laboratory and mill work done under auspices of the raw silk committee. Numerous laboratory tests were made to ascertain the facts regarding the "two-tone" silk problem.

•

Circular Non-Run Hosiery

Sample non-run circular stockings of silk, silk and rayon, and other rayon mixtures are being knit in England by Wildt & Co., Ltd., knitting-machine manufacturers, Leicester. According to the English patent, "fabric ground and warp threads are knitted together with the ground-thread loops plated in front of the warp-thread loops, and . . . the ratio of the ground-thread diameter to the warp-thread diameter is at least 1.4:1."

Non-run hosiery based on the Jones and Mills patent, applicable to both full-fashioned and circular hose, are about to be knitted under license by J. B. Lewis & Sons, Ltd., Nottingham, England.

•

Ipswich Prints Cut

Ipswich Prints, printed hosiery for women, developed by Ipswich Mills of Gloucester, Mass., were offered at a revised price of $12.50 a dozen, it was announced by H. G. Reynolds, president of the company. This lowers the former retail price of $1.95 to $1.65. The reduction, Mr. Reynolds said, was effected through economies of manufacture resulting from increased volume. The new line includes small all-over designs for daytime wear, with special attention to tweed and other fabric textures suitable for wear with high style fall fabrics, and decorative clocks as well as fanciful all-over patterns for evening wear.

•

Seek Standard Order Forms

A study of order forms now in use by the hosiery and underwear industry, for the purpose of suggesting standard conditions of sale to be printed on such forms, is being undertaken by the National Association of Hosiery and Underwear Manufacturers. If a standard were generally adopted, it is pointed out by Earl Constantine, managing director, this would eliminate many of the mis-

understandings and difficulties which arise to-day following the placing of an order. The association has asked members to send in six copies of all order forms they are now using.

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Hosiery Mills Increase Wages

One significant reaction to hosiery industry improvement during the month was the announcement by various mills of wage increases, or restoration of wages to pre-cut levels. Among the important companies announcing upward revisions of wage scale were the Durham Hosiery Mills, Durham, N. C., and Cooper, Wells & Co. hosiery mills, Decatur, Ala. On Aug. 15, the Durham company posted notice of blanket wage advances of 10% "because of increased business." Five days previous the Cooper-Wells company, now operating day and night, had announced 5% increase in wages for workers in 39-gauge equipment.

•

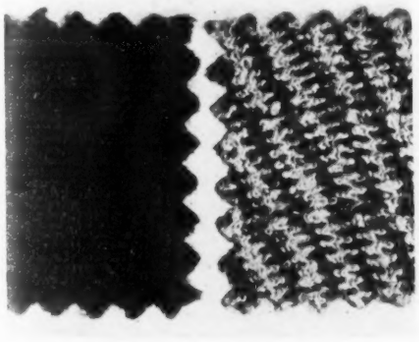
Esterly Joins Chipman

Charles J. Esterly, formerly with Berkshire Knitting Mills for 16 years, has joined the Charles Chipman's Sons Co. sales organization and will cover part of his old territory. The Rosedale (Pa.) Knitting Mills, the firm's leading full-fashioned account, is now on full time. Mr. Esterly has served two terms in Congress.

•

Hosiery Price Outlook Improves

The rising market on full-fashioned hosiery stimulated active buying during August, and while certain major mills had not advanced prices at the end of the month, the general tone was decidedly stronger both as regards prices and orders. Advances of 25 to 50c. per dozen were announced by numerous medium-sized mills toward the latter part of the month, in response to the sharp upturn in raw silk. Despite market strength, there was no real trend toward future contracting by distributors.



New fall tricots of Durene made by Patrician Silk Co.

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Underwear Prices Tend Upward

Men's heavyweight underwear prices were advanced 25c. per doz. on 10 and 12 lb. union suits, in mid-August, and further stiffening occurred later in the month, reflecting the continued advance in raw material levels. Jobbers and retailers were unimpressed by the rise at first, restricting their orders to nearby, but the end of the month brought a sharp increase in demand, and stocks were so light that difficulty in deliveries during the current month were likely.

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Knitting Mill News

Varina (N.C.) Knitting Co. has plans under way for the rebuilding of its mill, recently damaged by fire. The new unit will be one-story, 90x140 ft., with wing extension for dyehouse and boiler room. Work is reported to cost close to $35,000, with equipment.

Propper-McCallum Hosiery Co. has rented from the Belding-Heminway Co., the old Corticelli mill in Leeds, Mass., for use as a throwing plant.

Norge Knitting Mills, Jersey City, N. J., recently organized, have leased space in the six-story mill at 50-52 Essex Street, totaling about 12,000 sq.ft. of floor space, and will produce knitted sportwear for women.

Adams-Millis Corp. reports consolidated net profit of $135,057 after depreciation, Federal and State taxes, for the first half of 1932. This compares with a net profit of $451,620 for the same period in 1931.

Chester Knitting Mills, Rome, Ga., a branch plant with headquarters in St. Louis, Mo., was sold at recent public auction, subject to approval of the court, to John H. Daniel for $8,000.

Utica Knitting Co., Mill No. 9, Anniston, Ala., is constructing an addition to be equipped with machinery transferred from branch plant in Richfield Springs, N. Y. Lightweight underwear will be manufactured.

Whisnant Hosiery Mill, Hickory, N. C., is building an addition, 42 ft. in length, which will provide new offices and space for 25 more knitting machines.

Novelty Hosiery Mill, Marion, N. C., has been sold by W. K. M. Gilkey to C. G. and Albert Carpenter, and the name of the concern changed to the Blue Ridge Hosiery Mill.

Everrite Hosiery Mills, New York, N. Y., are considering the construction of a new knitting mill at Tampa, Fla., to cost $30,000 and to be ready for operation by close of year. New plant will be operated in the name of the Tampa Everrite Hosiery Mills. Elias P. Romb heads the project.

Gardiner-Warring Co., Florence, Ala., recently let contract for the addition of another story to one of its mill buildings to increase facilities for manufacture of men's rayon underwear.

Real Silk Hosiery Mills, Inc., Dalton, Ga., are moving their dyeing and finishing equipment to their Indianapolis mills.

Paint Rock (Ala.) Hosiery Mill is placing machinery in a building obtained to house the plant and will soon reopen. The plant was destroyed in a tornado late in March.

Tip Top Hosiery Mills, Asheboro, N. C., which is a reorganization of Pilot Hosiery Mills, Inc., recently started the production of samples under the direction of E. J. Crane, formerly of Philadelphia, Pa., new superintendent.

Munsingwear, Inc., shows a consolidated net loss of $788,031 after all charges for the first half of 1932. This compares with a net loss of $368,320 for the first half of the year previous.

Gotham Silk Hosiery Co., shows a consolidated net profit of $62,765 after all charges including interest and depreciation, for the six months ended June 30, 1932.

Julius Kayser & Co., reports for the fiscal year ended June 30, a net loss of $1,329,529, after deductions for interest, taxes, depreciation, foreign exchange losses and inventory adjustments. This figure compares with a net profit of $507,360 for the preceding fiscal year.

The Lehigh Silk Hosiery Mills, long a leader in the hosiery field and capitalized at $1,500,000, with mills in Philadelphia, was placed in equity receivership by Judge Dickinson, who named James S. Rankin receiver and Samuel Gailey as co-receiver.

TEXTILE WORLD'S

Processing Digest

PUBLICITY—or propaganda, if you will—performs a definite and useful function. There is need for that function in the processing branch of the textile industry.

With few exceptions, individual dyehouses and finishing plants, as well as the associations which represent them, shun publicity.

Who, outside of the chemist and dyer, knows what can and cannot be done in the way of producing fast-dyed and fast-printed fabrics? What attempt is made to acquaint consumers with the progress made in developing special finishes for special requirements? And yet, that information is sorely needed by the public at large. There is more mis-information current on dye fastness, alone, than on any other one subject we can think of.

It would seem that a joint committee representing, say, the National Association of Finishers of Textile Fabrics, the Silk Dyers Association of America, the American Association of Textile Chemists and Colorists, and the Textile Converters Association, might serve as a clearing station, receiving reports of activities from individual plants and associations and making such information available to the public.

Wages and Hours of Labor in Dyeing and Finishing Plants

Results of studies, in 1930 and 1932, made by the U. S. Bureau of Labor Statistics and summarized in the *Monthly Labor Review* for August indicate that average hours actually worked increased from 49.3 in 1930 to 49.9 in 1932, average earnings per hour decreased from 45.2c. per hour in 1930 to 40c. per hour in 1932, and actual earnings per week decreased from $22.29 in 1930 to $19.99 in 1932.

Average earnings per hour of males ranged in 1930 in the various occupations from 29c. for yarn winders to $1.247 for machine engravers, and those of females ranged from 28.1c. for plaiters to 43.8c. for batchers. In 1932 the averages of males ranged from 30.3c. for pilers to $1.021 for hand engravers, and those of females ranged from 24c. for plaiters to 35.6c. for measurers. Averages of males in 40, and of females in 12 occupations and of males and of females in the group of other occupations were less in 1932 than in 1930, and in one occupation for males were more in 1932 than in 1930.

In each State the average earnings per hour of males and of females were less in 1930 than in 1932. The average hourly earnings of males for all States were 47.3c. in 1930 and 41.8c. in 1932; those of females were 33.5c. in 1930 and 29c. in 1932; and those of males and females combined were 45.2c. in 1930 and 40c. in 1932.

Examination of the figures from each of the key States shows that average hourly earnings for males ranged from 27.8c. in South Carolina to 49.7c. in Pennsylvania during 1932. Hourly earnings for females ranged from 21c. in South Carolina to 35.2c. in New Jersey.

Figures on the average earnings per hour, in 1932, of male dyeing machine tenders are as follows for the various States: Connecticut, 41.8c.; Massachusetts, 33.1c.; New Jersey, 43.9c.; New York, 38.7c.; North Carolina, 26.6c.; Pennsylvania, 49.6c.; Rhode Island, 44.3; South Carolina, 26.6. Printers averaged per hour as follows: Connecticut, 97.5c.; Massachusetts, 106.3c.; New Jersey, 107c.; New York, 130.9c.; North Carolina, 33c.; Pennsylvania, 147.5c.; Rhode Island, 113.2c.; South Carolina, 41.7c.

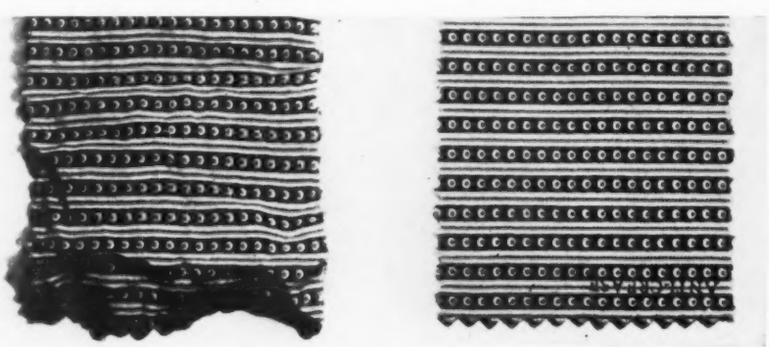
Hourly rates for male tenter frame tenders were as follows: Connecticut, 45.2c.; Massachusetts, 32c.; New Jersey, 43c.; New York, 37.8c.; North Carolina, 27.1c.; Pennsylvania, 42.8c.; Rhode Island, 40.5c.; South Carolina, 26.1c.

•

Creaseproof Fabrics

Announcement that Tootal, Broadhurst & Lee, England, are expanding their plant to manufacture creaseproof cotton and rayon fabrics and the report that Kenneth Lee will visit this country to arrange for production of similar materials have stimulated interest in methods for rendering fabrics less susceptible to creasing and crushing. The process employed by this company consists fundamentally of impregnating the yarn or fabric with a synthetic resin. One procedure described in U. S. Patent 1,734,516 (believed to cover the methods employed by Tootal, Broadhurst & Lee) is briefly as follows: The fabric, after mercerizing, is washed and squeezed to contain approximately an equal weight of water. It is then treated in a mixture containing by weight 100 parts of phenol, 100 parts of 40% formaldehyde, and 4 parts of potassium carbonate. The goods are then squeezed to retain the original weight of liquid, dried at a low temperature, heated for 2 min. at 170° C. to render the resin insoluble in water, soaped to remove the excess of the reagents, washed, and dried. A number of variations are permitted in this procedure, as for example, use of parabromophenol, orthochlorophenol, or urea in place of phenol, and caustic soda instead of potassium carbonate.

This treatment, which is particularly applicable to cotton and rayon fabrics, is said to render the goods less susceptible to creasing or crushing. It is asserted that the fabric retains its suppleness, that there is not undue tendering, and that the finish is satisfactorily resistant to washing. According to the inventor of the process, the result is be-



Demonstration of creaseproofing; both fabrics crushed in the hand and laid on table; left untreated, right treated.

lieved to be due to the presence of synthetic resins within the individual fibers and absence in quantities in the space between the fibers and yarns.

•

Finishing Activity

Figures released by the National Association of Finishers of Textile Fabrics show printing at 62% of normal average capacity during August as compared with 41% in July and 60% in August, 1931. White and dyed combined gained from 32% in July to 41% in August as compared with 50% in August, 1931. Data on blacks were: fast black, August, 26%, July, 13%, and August, 1931, 21%; logwood and sulphur black, August, 24%, July, 21%, August, 1931, 31%.

•

Talk of Dye Trade Having "Czar"

There has been some talk in and about Paterson and the New York market about appointing a "Czar" to run the silk dyeing and finishing trade. Mayor Frank Hague was mentioned at one time as likely to ascend the throne, but no positive action has been taken to date. "Stabilization" and "rehabilitation of the industry" are among the advantages which advocates claim a dictator would bring.

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Dyer Acts to Protect Designs

A cautious attitude on the part of the larger silk print houses toward the preparation of spring lines is indicated by prominent officials of these firms, the reason being the uncertainty now obtaining as to the safety or sanctity of original designs.

This waiting policy will probably result, it is said, in fewer patterns and later showings.

Charles L. Auger, president of the National Silk Dyeing Co., stated late in August that his company has taken a definite stand with respect to the protection of designs placed with his company for printing, declaring that such designs "will be protected by every means available to National to assure such protection."

•

Dyestuff Exports Drop

United States exports of coal-tar dyes for the first six months of 1932 showed a considerable drop in both pounds and value from the levels of 1931 and 1930. Shipments to 62 world markets for the first half of 1932 were 8,102,990 lb., valued at $2,082,360, against 11,817,544 lb., valued at $2,676,963, for comparable period in 1931. China remained by far the largest market although suffering a drop from 8,058,621 lb. to 4,943,983 lb., while trade with the Netherlands slumped sensationally from 221,268 lb. to 1,777 lb. Canada, the second largest market, showed an increase from 845,940 lb. to 968,463 lb.

•

New Dyestuffs

E. I. du Pont de Nemours & Co. announce the following new product:

Pontamine Diazo Blue 6G, a direct color recommended for development with beta naphthol. This dyestuff is of particular interest for discharge work, giving clear whites on cotton and tinted whites on silk. The general fastness is sufficiently good to meet all ordinary requirements for women's dress goods and similar fabrics. Pontamine Diazo Blue 6G is expected to find its widest use on cotton and rayon, but it may also be applied to pure silk when dyed in an acid bath.

General Dyestuff Corp., as the selling agent of the General Aniline Works, offers the following new products:

Supranol Reds PG, PRX, RA, and PBX. Dyed from a glauber salt and acetic acid bath, they produce on wool bright red shades, ranging from scarlet to bluish red, of very good fastness to water, washing, perspiration, and salt water. They are especially recommended for the dyeing of knitting yarn for sweaters, bathing suits, etc. They are also suited for the dyeing of carpet yarn, to stand the so-called Oriental finish. All of the four dyes have good affinity for silk and are well suited for the printing of wool, as well as pure dyed and tin-weighted silk.

General Dyestuff Corp. has announced the following:

Benzo Viscose Yellow 5GL, Yellow GGL, Orange RL, Red BL, Violet BL and Blue 5GFL are direct colors which, because of excellent leveling properties, are particularly suitable for dyeing viscose of varying affinity and which possess good, and in some cases very good, fastness to light. The Yellow 5GL, GGL, and Orange RL are very suitable for dyeing mixed fabrics of cotton and viscose, even in deep shades. The Red BL, Violet BL and Blue 5GFL in full shades dye the viscose more deeply, especially in presence of glauber's salt, but the Red and Violet behave more favorable when dyed from an almost boiling soap bath without glauber's salt. Some salt must be used with the Blue.

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Processing Plant News

ELMORE CORP., Spindale, N. C., recently equipped its power plant with the Kennedy pulverized fuel system which was installed by the Kennedy-Van Saun Mfg. & Eng. Corp., New York, N. Y.

ATLAS FINISHING CO., Homestead, N. J. Two-story mill of this company at Grove Street and Paterson Plankroad, on site 200x206 ft., and one-story structures adjoining, have been secured by the Trust Company of New Jersey, Jersey City, N. J., under foreclosure proceedings.

AIBILL FINISHING CORP., Paterson, N. J., has been chartered, with a capital of $5,000, to establish and operate a plant for the dyeing and finishing of textiles. Harry H. Silver, attorney, New York, represents the new firm.

GEORGE GOLD has been appointed receiver for the NORTH JERSEY DYE WORKS, INC., Paterson, N. J. Receivership was granted upon application of two of the creditors and with the consent of the defendant concern.

ARNOLD PRINT WORKS reports earnings of $207,912 after inventory adjustments and depreciation, but before taxes, interest and dividends, for the year ended June 30, 1932.

PROCESSING IN THIS ISSUE

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Textile World Analyst

PRICE ADVANCES AND LARGE SALES INCREASE CHANCES FOR PROFITS

Year's activity 22% less than 1931; 28% less than normal—The spurt in the consumption of all textile fibers during August, although marking a sharp rebound from the May-June-July low ebb of activity, was not sufficient to alter radically the relation which 1932, to date, bears to previous years. Total consumption of textile fibers for the first eight months of 1932 was 22% less than for the first eight months of 1931 and 28% less than for the first eight months of a normal year. In determining a normal year month by month consumption figures for the period 1924-1931 were averaged.

▼ ▼ ▼

AUGUST, 1932, was one of the most significant months in the recent history of the textile industry, marking as it did a complete reversal in price trends and a radical increase in volume of sales.

The TEXTILE WORLD index numbers, given at the bottom of the page, illustrate the extent to which the average August prices exceeded the average July prices. When Aug. 1 prices are compared with Aug. 31 prices, however, the gains show up even more sensationally. Spot cotton increased over 27% in value during the month, raw wools showed gains in the neighborhood of 22%, and silk attracted headlines by soaring approximately 60%.

In view of the rapid advance in raw material prices and the desire of the mills to book orders while the booking was good, it is perhaps natural to expect that in some cases the prices of yarns and fabrics did not show gains which would adequately reflect the higher raw material prices. The result was that manufacturing margins, representing the spread between price paid for raw material and price secured for finished goods, were, on certain types of yarns and fabrics, lower than during the previous month. On the other hand, there were cases where margins increased because fabric prices were advanced more rapidly than raw materials.

Carded print cloths showed their sensitive response to market conditions by not only showing price gains to reflect the advance in cotton, but also additional gains to show the state of active demand. Manufacturing margin for August, showing average price of a group of print cloths less price of clean cotton, and comparable margins in other months were as follows:

Date	Margin in cents
July, 1931	15.3
October, 1931	12.3
January, 1932	12.1
June, 1932	9.5
July, 1932	9.1
August, 1932	11.1

It will be seen from the above comparison that, although the margin has improved, there is still much to be desired from the angle of profitable operation. One factor which must be taken into consideration is that greater activity leads to lower costs, but it is doubtful that prices even now show a profit to the average mill, no matter what the rate of activity.

Carded yarn prices were not advanced all along the line in keeping with cotton prices and the result is that the August margin, representing average price of a group of carded yarns less price of clean cotton, stood at 9.23c. per lb. as compared with 9.65c. in July. Other comparable margins were: October, 1931, 12.7c.; April, 1932, 10.8c.

Combed yarn prices advanced rapidly during August and a further rise was announced on Sept. 1. Average price of 60/2 C.P. warps for the month was 40c. per lb., while average price of 1 1/4 in. cotton, less waste, was 15.13c., leaving a margin of 24.8c. Other comparable margins were:

Date	Margin in cents
July, 1931	24
May, 1932	24
June, 1932	21
July, 1932	21.4
August, 1932	24.8

Combed goods lagged on the price rise, with the result that manufacturing margins were decreased. Taking a typical combed broadcloth and subtracting cost of clean 1 1/4 in. cotton, the margin for August was 19.19c. per lb. Other margins were: July, 1931, 26.8c.; January, 1932, 23.9c.; July, 1932, 20.2c.

It is obvious that the textile industry is working toward a saner price structure, but a great deal remains to be done. One of the difficulties is that many orders have been taken during the present buying spurt at less than replacement cost, many mills having been inclined to sell on the basis of cost of cotton owned, rather than market price of cotton. While such a procedure may show up well so far as an individual order is concerned, continuance of the practice is not sound, depending as it does on a constantly increasing price for raw cotton. A letdown in buying is inevitable and it is to be hoped that mills will not then give away the price gains that have been made since Aug. 1.

Textile World's Index Numbers

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Raw Silk Index: Date	Raw Silk
July 31, 1914	100	100	100	100	100	100	100	100	July 31, 1914	100
1925	193	193	193	177	221	226	222	234	1924-25 season	140
1926	146	159	161	152	189	195	199	210	1925-26	172
1927	130	146	153	147	179	184	186	195	1926-27	141
1928	160	162	163	166	218	201	198	197	1927-28	126
1929	158	163	156	168	182	184	193	198	1928-29	126
1930	114	131	127	147	131	143	164	190	1929-30	104
1931	75	97	99	121	102	114	134	165	1930-31	62
1932										
Jan.	53	78	74	102	94	104	127	147	Jan., 1932	41
April	49	75	73	98	83	98	121	133	May, 1932	28
June	42	66	63	94	62	76	110	116	June, 1932	25
July	47	68	62	96	59	72	101	116	July, 1932	25
Aug.	60	75	76	94	66	75	99	116	Aug., 1932	36